

Montana Water Supply Outlook Report May 1, 2014



The USDA-NRCS Montana Snow Survey staff bids a fond farewell to Brian Domonkos, Water Supply Specialist, who recently began working as the Data Collection Office Supervisor in the Colorado Snow Survey Office. Happy Trails!

Water Supply Outlook Report

and Federal - State - Private Cooperative Snow Surveys

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How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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Montana Water Supply Outlook Report as of May 1, 2014

April did not provide the well above average snowfall and precipitation experienced during the months February and March, however the weather pattern experienced did help to delay snowmelt and build on the high percentages of normal. Most basins in the state exhibited peak snow water equivalent during the beginning and middle part of April, while some basins in southwest Montana and along the Continental Divide exhibited peaks at the end of the month. While some snowmelt has occurred at lower to mid elevations, higher elevations in the basins have seen little melt during the month, delaying the onset of the bulk of the snow-melt runoff from entering river systems. Lower elevations have made the transition to an isothermal and melting snowpack, and mid elevations are beginning to see the same active melt. Assuming normal climatic conditions in the upcoming weeks, more advanced melt rates should begin to occur as days get longer with more available solar energy and higher observed temperatures.

Snowpack

Statewide SNOTEL and snow course data reported 155 percent of normal for May 1st, and 149 percent of last year at this time. The Bitterroot River Basin currently has the highest basin percentage of normal in the state, indicating 188 percent of normal for May 1st, and 199 percent of last year at this time. Worth noting this month are the Missouri Mainstem, Tongue, and Powder River basins which reported the highest daily snow water equivalent values (SWE) since 1981. However, the 2014 peak SWE did not surpass those recorded 1997 and 2011.

If snowmelt continues to be delayed in the mountains the basin percentages of normal will continue to increase, as snowmelt is normally occurring at this time. This time of year the daily normal value that we compare current SWE values to is decreasing as it generally represents a melting snowpack. If the current snow water equivalent value stays the same, or decrease at a slower rate, the basin percentages or normal will increase. Since the peak may have been observed in many of the basins, the basin percentages are indicating that there is a substantial amount of snow water left in the mountains compared to “normal” for runoff this spring.

River Basin	May 1 % of Median	% of Last Year
Columbia	159	148
Kootenai	145	126
Flathead	156	138
Upper Clark Fork	162	170
Bitterroot	188	199
Lower Clark Fork	164	138
Missouri	150	153
Missouri Headwaters	142	149
Jefferson	143	159
Madison	135	141
Gallatin	148	142
Missouri Mainstem	172	164
Headwaters Mainstem	180	186
Smith-Judith Musselshell	158	154
Sun-Teton-Marias	178	160
Milk	0	0
St. Mary	138	116
St. Mary & Milk	136	115
Yellowstone	157	153
Upper Yellowstone	166	166
Lower Yellowstone	149	144
Statewide	155	149

Precipitation

The convective nature of the storm systems during April resulted in variable precipitation across the state. State-wide precipitation for the month of April was slightly below average at 93 percent. The far western basins along the Idaho border and central part of the state received well below average precipitation for the month. The overall water year to date precipitation totals since October 1st still reflect above average precipitation (to date) in most basins. The statewide precipitation is currently 116 percent of average, and 115 percent of last year at this time.

River Basin	Monthly % of Average	Water Year % of Average
Columbia	100	112
Kootenai	115	102
Flathead	79	118
Upper Clark Fork	94	117
Bitterroot	87	123
Lower Clark Fork	108	106
Missouri	91	114
Jefferson	82	109
Madison	108	114
Gallatin	106	123
Missouri Mainstem	102	125
Smith-Judith Musselshell	70	116
Sun-Teton-Marias	99	115
Milk	79	103
St. Mary	102	109
St. Mary & Milk	89	106
Yellowstone	93	130
Upper Yellowstone	110	136
Lower Yellowstone	88	125
Statewide	93	116

Reservoirs

Reservoir storage west of the divide was 137 percent of average and 109 percent of last year. East of the Divide, reservoir storage was 101 percent of average and 101 percent of last year.

River Basin	% of Average	Current as % of Last Year
Columbia	107	88
Kootenai	116	88
Flathead	101	87
Upper Clark Fork	100	103
Bitterroot	120	109
Lower Clark Fork	104	103
Missouri	100	103
Missouri Headwaters	96	95
Jefferson	79	78
Madison	108	109
Gallatin	71	85
Missouri below Toston	100	103
Missouri Mainstem	100	103
Smith-Judith Musselshell	132	131
Sun-Teton-Marias	97	99
Milk	127	98
St. Mary	201	110
St. Mary & Milk	137	101
Yellowstone	94	83
Upper Yellowstone	95	103
Lower Yellowstone	94	83
Statewide	102	65

Streamflow

Streamflow prospects continue to be well above average in most parts of the state. The Smith-Judith-Musselshell combined river basin continues to have the highest percentage of average May-July flows using the 50 percent exceedance forecast at 182 percent of average. The extreme headwaters of the Jefferson River basin continue to have the lowest forecasts in the state indicating 72 percent of average May-July flows for Lima Reservoir Inflow and 80 percent for Clark Canyon Inflow. Overall, streamflow prospects are down slightly in most locations from April 1str, but remain at 146 percent of average state-wide, and 152 percent of what we experienced last year.

Following are streamflow forecasts for the period April 1 through July 31. THE FIGURES IN THE TABLE BELOW ARE AN AVERAGE OF ALL FORECASTS WITHIN THE PARTICULAR BASIN AT THE 50 PERCENT EXCEEDANCE ONLY. ALL 50 PERCENT EXCEEDANCE FORECASTS ASSUME NEAR NORMAL WEATHER THROUGH THE END OF THE FORECAST PERIOD. FOR FORECASTS ABOVE AND BELOW THE 50 PERCENT EXCEEDANCE, LOOK TO THE SPECIFIC BASIN REPORTS.

May-July Streamflow Forecast Period		
River Basin	Forecast as % of Average	This Year Forecast as % of Last Year Streamflow
Columbia	148	130
Kootenai	122	132
Flathead	129	117
Upper Clark Fork	160	203
Bitterroot	158	207
Lower Clark Fork	144	155
Missouri	143	189
Missouri Headwaters	130	246
Jefferson	134	349
Madison	117	168
Gallatin	136	189
Missouri Mainstem	145	182
Headwaters Mainstem	146	184
Smith-Judith Musselshell	182	341
Sun-Teton-Marias	137	147
St. Mary	109	99
Milk (May-Sept % median)	108	121
Yellowstone	146	191
Upper Yellowstone	142	177
Lower Yellowstone	149	202
Statewide	146	152

Surface Water Supply Index

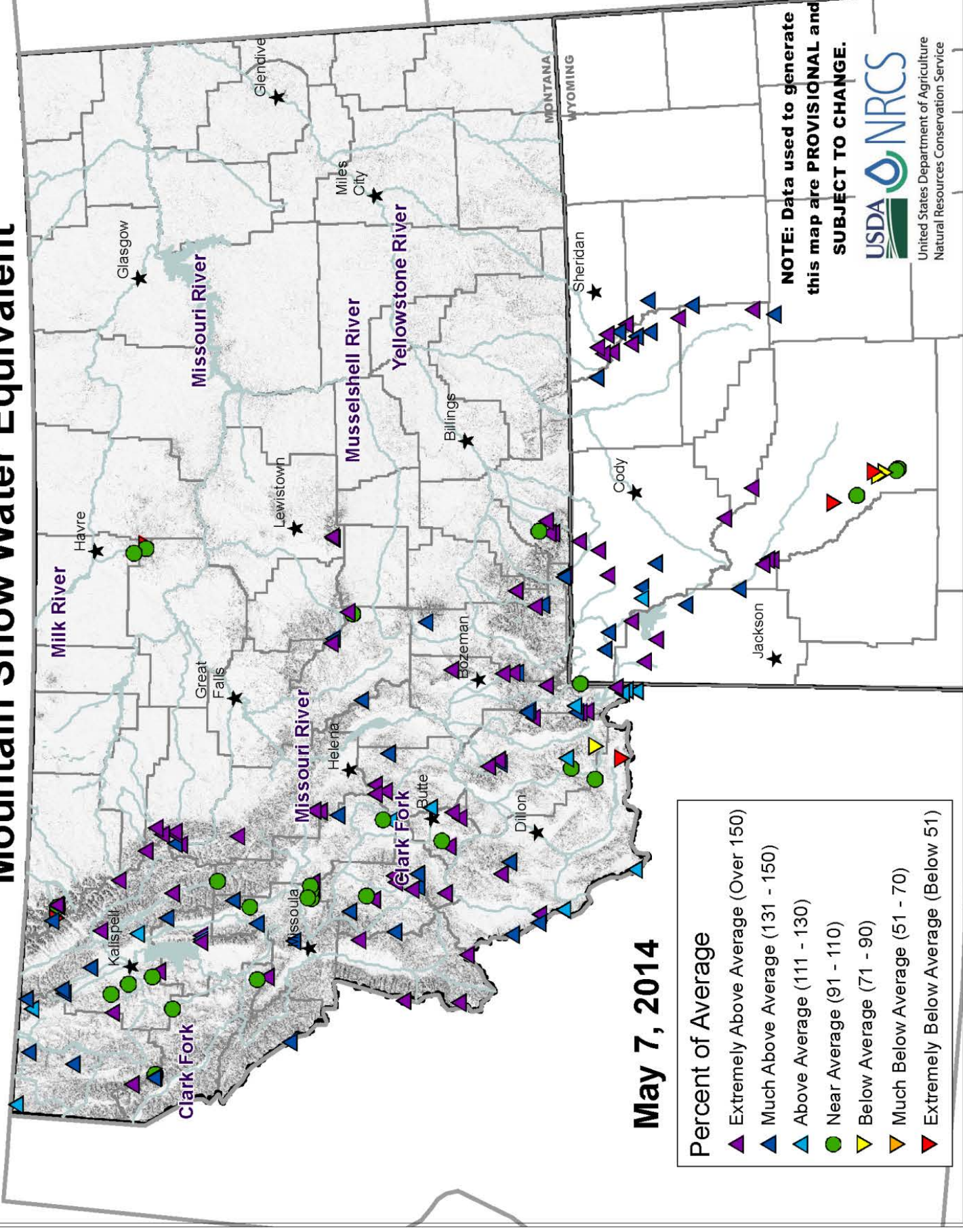
The Surface Water Supply Index (SWSI) is a measure of available surface water availability for the spring and summer months. Water users that rely on mountain precipitation can use the index to evaluate seasonal surface water supplies. The SWSI accounts for mountain snowpack, mountain precipitation, streamflow, reservoir storage, and soil moisture.

Watershed	This Year's SWSI	Last Year's SWSI
Tobacco River	1.6	0.3
Kootenai Ft. Steele to Libby Dam	1.0	0.6
Kootenai River below Libby Dam	1.4	2.1
Fisher River	1.8	0.2
Yaak River	0.6	1.2
North FK. Flathead River	1.4	1.6
Middle FK. Flathead River	1.9	1.6
South FK. Flathead River	2.1	4.0
Flathead River at Columbia Falls	1.8	2.2
Swan River	2.9	0.5
Flathead River at Polson	2.1	1.3
Mission Valley	-1.7	-3.6
Little Bitterroot River	3.5	1.8
Clark Fork River above Milltown	2.3	-2.4
Blackfoot River	2.7	-0.6
Clark Fork River above Missoula	2.7	-2.1
Bitterroot River	2.5	-1.4
Clark Fork River below Bitterroot River	2.6	-1.9
Clark Fork River below Flathead River	2.3	0.2
Beaverhead River	-1.9	-1.5
Ruby River	-0.5	-2.5
Big Hole River	1.4	-1.1
Boulder River (Jefferson)	2.1	-1.8
Jefferson River	1.9	-0.7
Madison River	1.6	-1.6
Gallatin River	2.1	-1.2
Missouri River above Canyon Ferry	1.9	-0.6
Missouri River below Canyon Ferry	0.8	-0.9
Dearborn River near Craig	2.6	-1.0
Smith River	2.4	0.1
Sun River	1.2	-0.4
Teton River	1.9	0.3
Birch/Dupuyer Creeks	-0.8	-1.6
Marias River above Tiber Reservoir	1.8	-1.4
Marias River below Tiber Reservoir	2.7	0.2
Musselshell River	2.6	-1.1
Missouri River above Fort Peck	0.4	-0.3
Missouri River below Fort Peck	-0.1	-1.6
St. Mary River	1.8	1.7
Milk River	0.8	1.2
Yellowstone River above Livingston	3.1	-1.2
Shields River	2.6	-2.3
Boulder River (Yellowstone)	2.7	-1.1
Stillwater River	2.7	-2.1
Rock/Red Lodge Creeks	2.9	-2.4
Clarks Fork River	3.4	-1.2
Yellowstone River above Bighorn River	3.0	-1.3
Bighorn River below Bighorn Lake	1.9	-1.1
Little Bighorn River	2.5	-2.5
Yellowstone River below Bighorn River	2.5	-1.2
Tongue River	2.7	-1.0
Powder River	2.7	-0.1

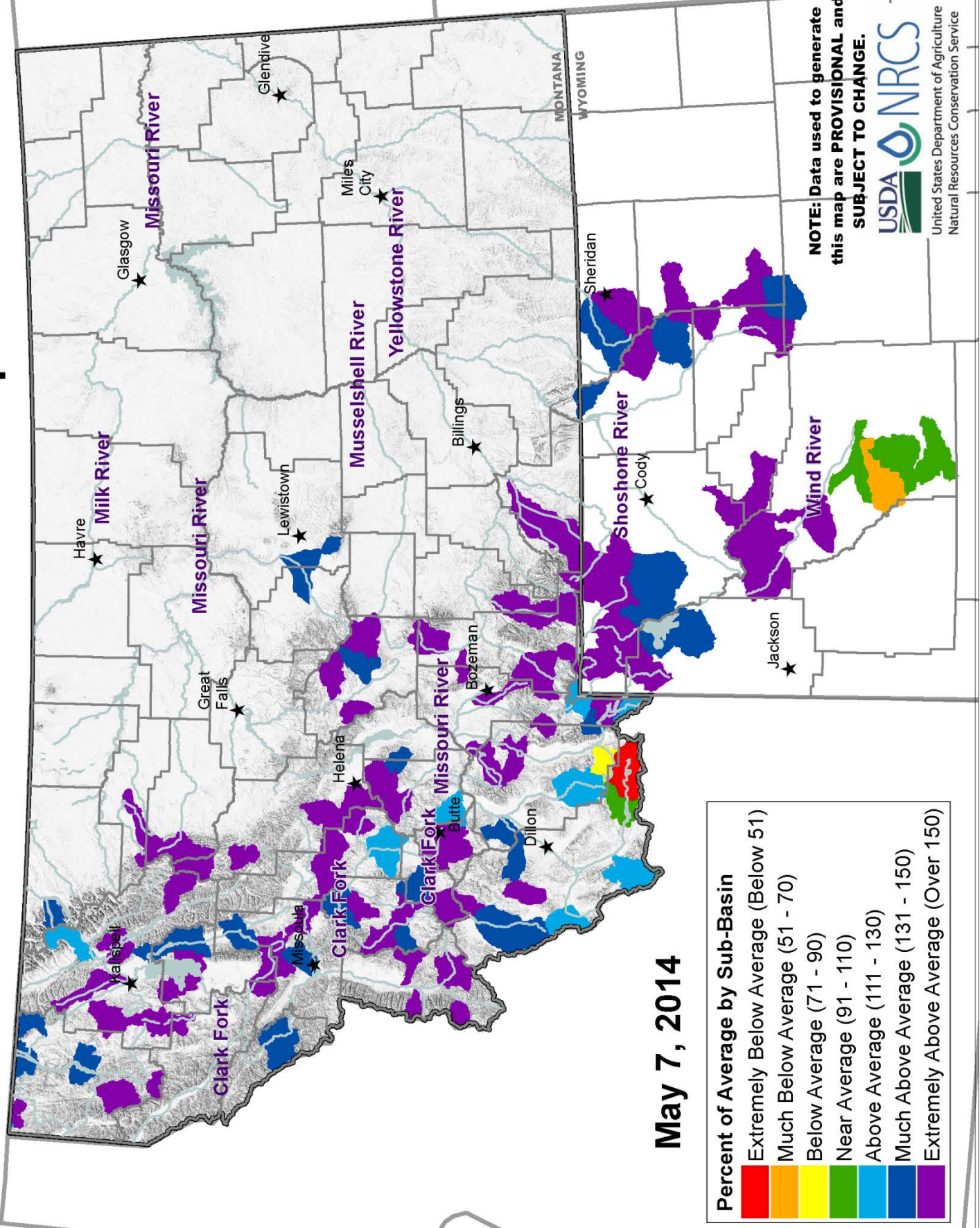
SWSI Scale

+3.0 to +4.0	Extremely Wet
+2.0 to +2.9	Moderately Wet
+1.0 to +1.9	Slightly Wet
+0.9 to -0.9	Near Average
-1.0 to -1.9	Slightly Dry
-2.0 to -2.9	Moderately Dry
-3.0 to -4.0	Extremely Dry

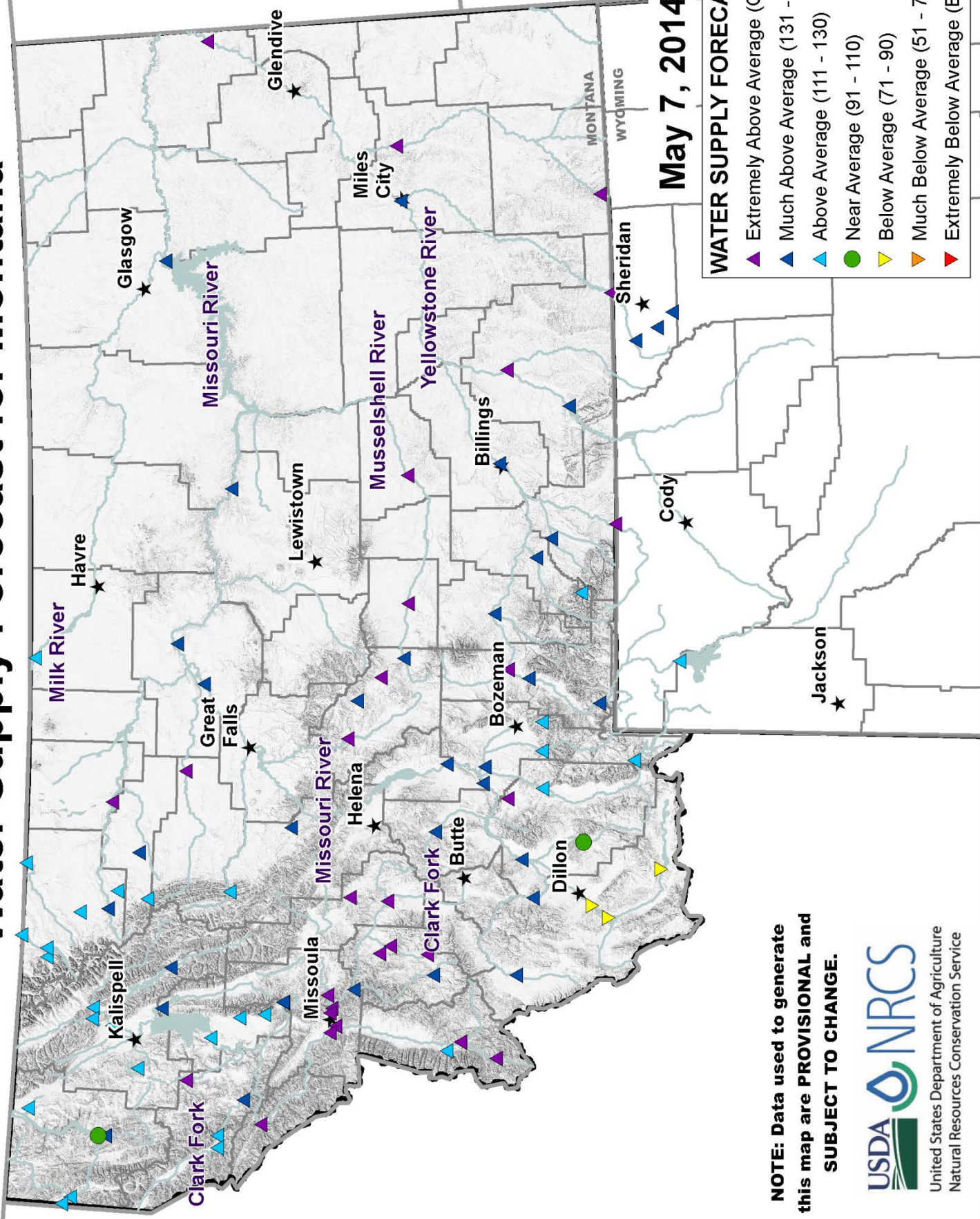
Mountain Snow Water Equivalent



Mountain Snow Water Equivalent



Water Supply Forecast for Montana

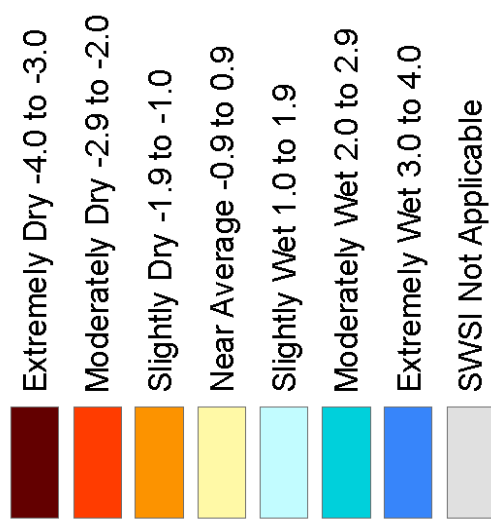
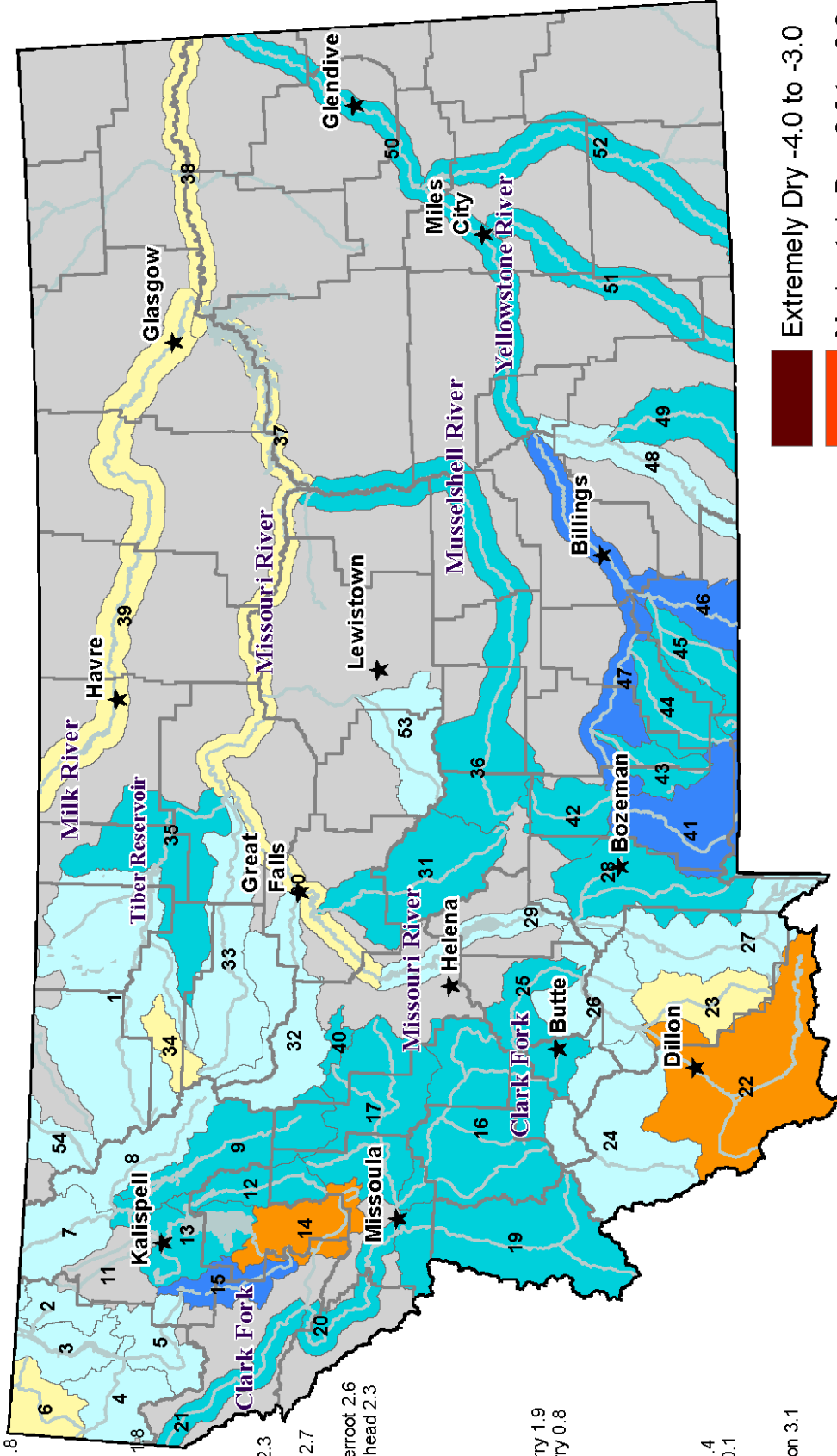


NOTE: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.

RIVER INDEX & SWSI VALUES

- 1 Marias above Tiber Reservoir 1.8
- 2 Tobacco 1.6
- 3 Kootenai Ft. Steele to Libby Dam 1
- 4 Kootenai below Libby Dam 1.8
- 5 Fisher 1.4
- 6 Yaak 0.6
- 7 North Fk. Flathead 1.4
- 8 Middle Fk. Flathead 1.9
- 9 South Fk. Flathead 2.1
- 10 Flathead at Columbia Falls 1.8
- 11 Stillwater/Whitefish Rivers
- 12 Swan 2.9
- 13 Flathead at Polson 2.1
- 14 Mission Valley -1.7
- 15 Little Bitterroot 3.5
- 16 Clark Fork above Milltown 2.3
- 17 Blackfoot 2.7
- 18 Clark Fork above Missoula 2.7
- 19 Bitterroot 2.5
- 20 Clark Fork River below Bitterroot 2.6
- 21 Clark Fork River below Flathead 2.3
- 22 Beaverhead -1.9
- 23 Ruby -0.5
- 24 Big Hole 1.4
- 25 Boulder (Jefferson) 2.1
- 26 Jefferson 1.9
- 27 Madison 1.6
- 28 Gallatin 2.1
- 29 Missouri above Canyon Ferry 1.9
- 30 Missouri below Canyon Ferry 0.8
- 31 Smith 2.4
- 32 Sun 1.2
- 33 Teton 1.9
- 34 Birch/Dupuyer Creeks -0.8
- 35 Marias 2.7
- 36 Musselshell 2.6
- 37 Missouri above Fort Peck 0.4
- 38 Missouri below Fort Peck -0.1
- 39 Milk 0.8
- 40 Dearborn near Craig 2.6
- 41 Yellowstone above Livingston 3.1
- 42 Shields 2.6
- 43 Boulder (Yellowstone) 2.7
- 44 Stillwater 2.7
- 45 Rock/Red Lodge Creeks 2.9
- 46 Clarks Fork Yellowstone 3.4
- 47 Yellowstone above Bighorn River 3
- 48 Bighorn below Bighorn Lake 1.9
- 49 Little Bighorn 2.5
- 50 Yellowstone below Bighorn 2.5
- 51 Tongue 2.7
- 52 Powder 2.7
- 53 Upper Judith 1.1
- 54 Saint Mary 1.8

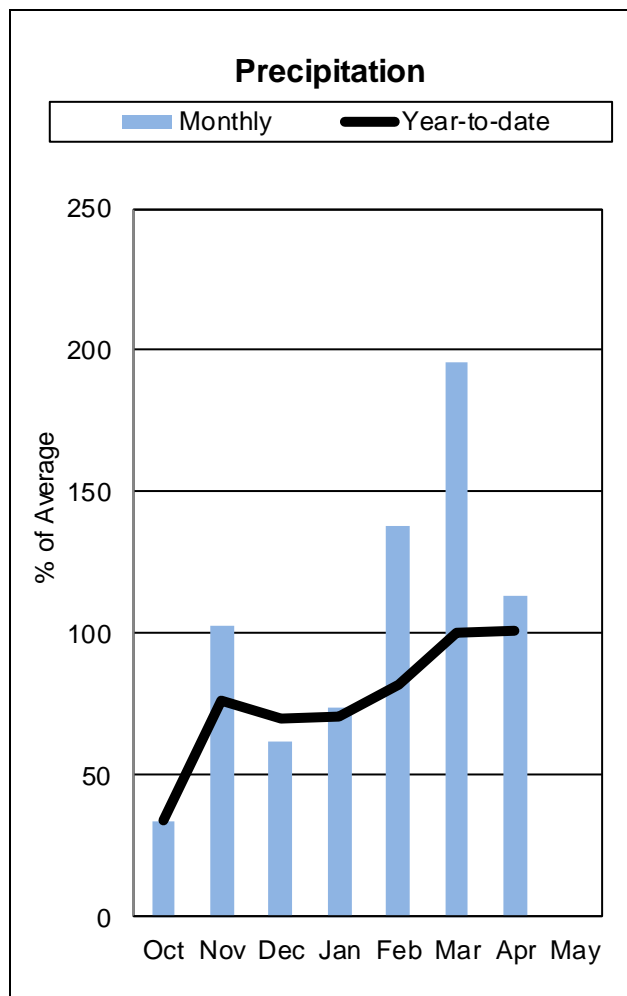
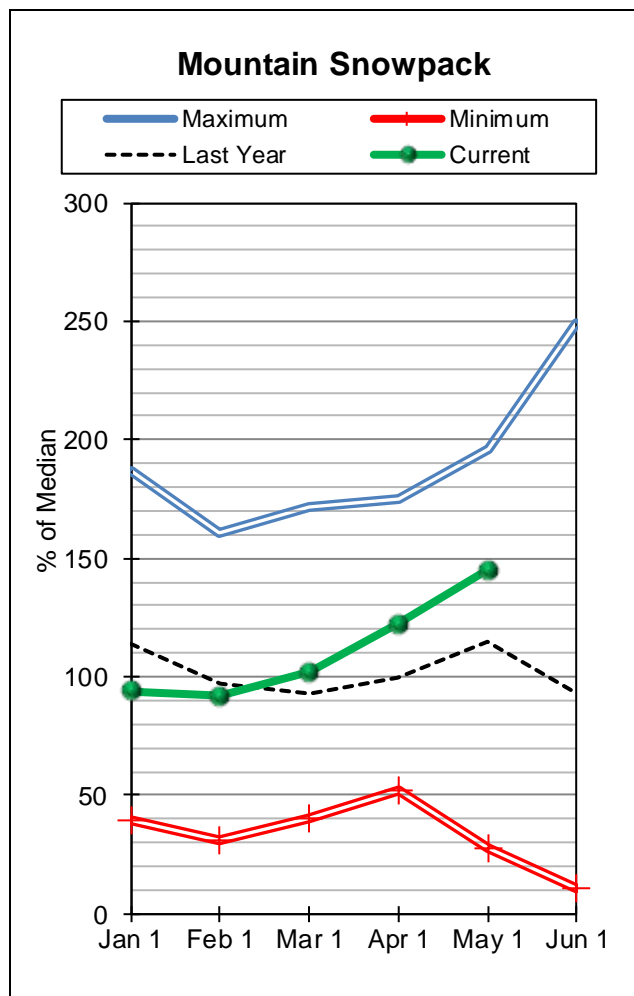
Surface Water Supply Index (SWSI) Values



May 7, 2014

NOTE: Data used to generate
this map are **PROVISIONAL** and
SUBJECT TO CHANGE.

Kootenai River Basin in Montana



Kootenai River Basin

The snowpacks as of May 1 remained well above normal in all of the sub-basins of the Kootenai: ranging from 133 percent of normal in the Kootenai Mainstem to 167 percent of normal in the Fisher River. Snow courses in Canada also measured well above average snowpacks on May 1 at 132 percent of normal. Overall, the Kootenai Basin came in at 145 percent of normal. Warmer temperatures in April resulted in snowmelt at the low to mid elevations. Storms throughout the month increased higher elevation snowpacks and slowed down any melt. As we move later into the snow season, the snowpack normals decrease and as snowpacks hold steady or even increase, the percent of normals can become very large. The bottom line is there continues to be a lot of snow within the basin.

April precipitation with the basin was just juicy enough to get the May flowers started. Mountain and valley precipitation for the Basin was 112 percent of average and 98 percent of last year. Basin percentages have increased as we move into the springtime period when the majority of precipitation falls in the form of rain.

Reservoir storage in Lake Koocanusa is 116 percent of average and 88 percent of last year.

Assuming average precipitation for the May through July period, streamflows are forecast to be 113 percent of average, and 92 percent of last year.

Kootenai River Basin In Montana

Streamflow Forecasts - May 1, 2014

KOOTENAI RIVER BASIN in MONTANA	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						30yr Avg (KAF)
		90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	
Tobacco R nr Eureka	MAY-JUL	96	112	123	122%	134	150	101
	MAY-SEP	107	125	138	121%	151	169	114
Libby Reservoir Inflow ¹	MAY-JUL	4390	4990	5260	109%	5530	6130	4820
	MAY-SEP	5260	5890	6180	108%	6470	7100	5733
Fisher R nr Libby	MAY-JUL	141	164	180	132%	196	220	136
	MAY-SEP	153	178	195	130%	210	235	150
Yaak R nr Troy	MAY-JUL	275	325	360	116%	395	445	310
	MAY-SEP	295	350	385	117%	420	475	330
Kootenai R at Leona ^{1,2}	MAY-JUL	5190	6110	6530	114%	6950	7870	5730
	MAY-SEP	6280	7150	7540	112%	7930	8800	6730

1) 90% and 10% exceedance probabilities are actually 95% and 5%

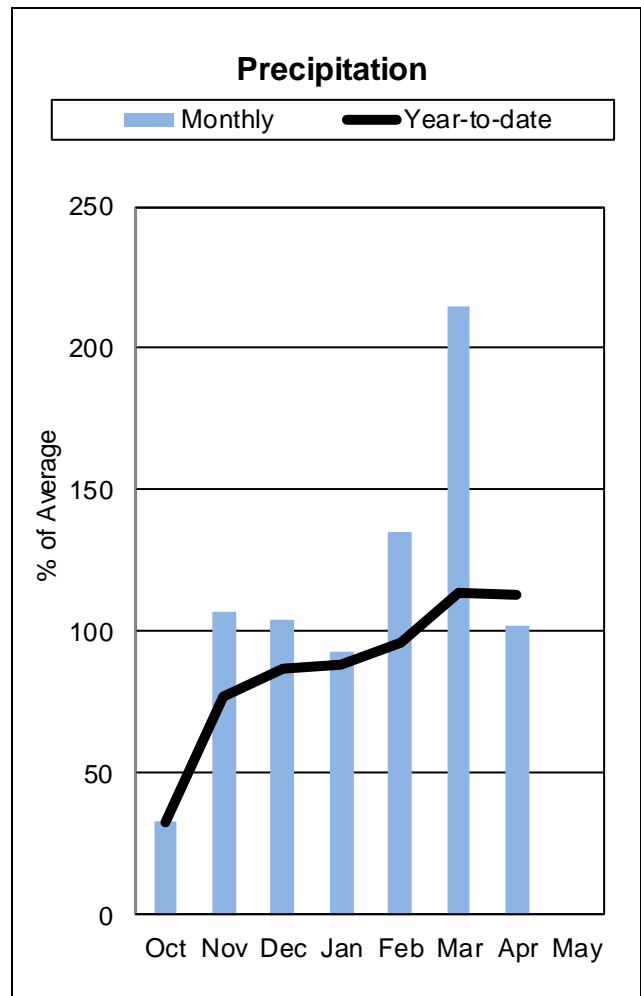
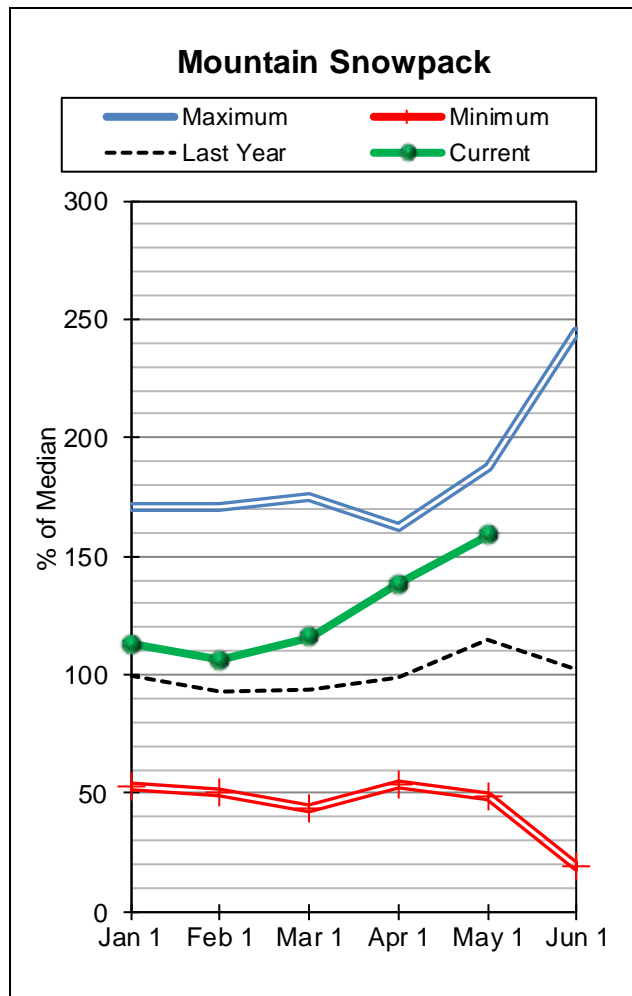
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
LAKE KOOCANUSA	3021.5	3453.0	2614.0	5748.0
Basin-wide Total	3021.5	3453.0	2614.0	5748.0
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
KOOTENAY in CANADA	15	128%	115%
KOOTENAI MAINSTEM	3	132%	113%
TOBACCO	3	146%	115%
FISHER	5	167%	115%
YAAK	2	136%	119%
KOOTENAI RIVER BASIN in MONTANA	13	145%	115%
KOOTENAI ab BONNERS FERRY	27	140%	116%

Flathead River Basin



On May 1 well above normal snowpacks persisted throughout the Flathead River Basin. Sub-basins' snowpack percentages within the Flathead ranged from 142 percent of normal in the North Fork drainage to 334 percent of normal in the Little Bitterroot-Ashley drainage. Warmer temperatures during April resulted in low and some mid-elevation snowmelt. Higher elevation sites' snowpacks did not really start any melt activity until the end of the month. Overall the Flathead River Basin snowpack came in at 156 percent of normal. As we move later into the snow season, the snowpack normals decrease and as snowpacks hold steady or even increase, the percent of normals can become very large. The bottom line is there continues to be a lot of snow within the basin.

April mountain and valley precipitation was 102 percent of average and 96 percent of last year. Basin percentages have increased a little as we move into the springtime period when the majority of precipitation falls in the form of rain.

Reservoir storages are 101 percent of average and 87 percent of last year.

Assuming average precipitation for the May through July period, streamflows are forecast to be 129 percent of average, and 117 percent of last year.

Flathead River Basin

Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

FLATHEAD RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
NF Flathead R nr Columbia Falls	MAY-JUL	1390	1500	1580	120%	1660	1770	1320
	MAY-SEP	1540	1670	1760	119%	1850	1980	1480
MF Flathead R nr West Glacier	MAY-JUL	1440	1570	1660	128%	1750	1880	1300
	MAY-SEP	1590	1730	1830	128%	1930	2070	1430
Sf Flathead R nr Hungry Horse	MAY-JUL	1230	1320	1380	135%	1440	1530	1020
	MAY-SEP	1310	1410	1470	134%	1530	1630	1100
Hungry Horse Reservoir Inflow ^{1,2}	MAY-JUL	1820	2030	2120	134%	2210	2420	1580
	MAY-SEP	1930	2160	2260	134%	2360	2590	1690
Flathead R at Columbia Falls ²	MAY-JUL	4890	5230	5470	128%	5710	6050	4290
	MAY-SEP	5330	5720	5980	127%	6240	6630	4720
Ashley Ck nr Marion ²	MAY	2.1	2.8	3.2	123%	3.6	4.3	2.6
	MAY-JUL	3.2	4.2	4.8	123%	5.4	6.4	3.9
Swan R nr Bigfork	MAY-JUL	520	560	590	136%	620	660	435
	MAY-SEP	605	655	685	134%	715	765	510
Flathead Lake Inflow ^{1,2}	MAY-JUL	5490	6120	6400	130%	6680	7310	4940
	MAY-SEP	5930	6640	6970	129%	7300	8010	5400
Mill Ck ab Bassoo ck nr Niarada	MAY-JUL	3.3	4.1	4.6	159%	5.1	5.9	2.9
	MAY-SEP	3.7	4.5	5	156%	5.5	6.3	3.2
South Crow Ck nr Ronan	MAY-JUL	9.4	10.6	11.4	124%	12.2	13.4	9.2
	MAY-SEP	10.8	12.1	13	123%	13.9	15.2	10.6
Mission Ck nr St. Ignatius	MAY-JUL	24	26	27	113%	28	30	24
	MAY-SEP	29	31	33	114%	35	37	29
SF Jocko R nr Arlee	MAY-JUL	40	43	45	155%	47	50	29
	MAY-SEP	44	48	50	152%	52	56	33
NF Jocko R bl Tabor Feeder Canal	MAY-JUL	37	39	40	143%	41	43	28
	MAY-SEP	37	40	41	137%	42	45	30

1) 90% and 10% exceedance probabilities are actually 95% and 5%

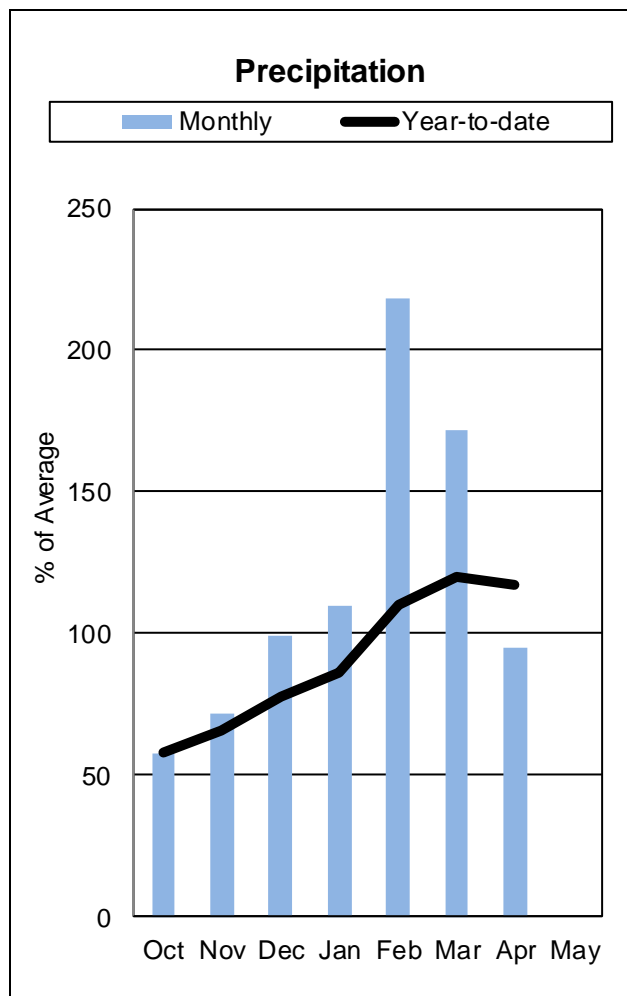
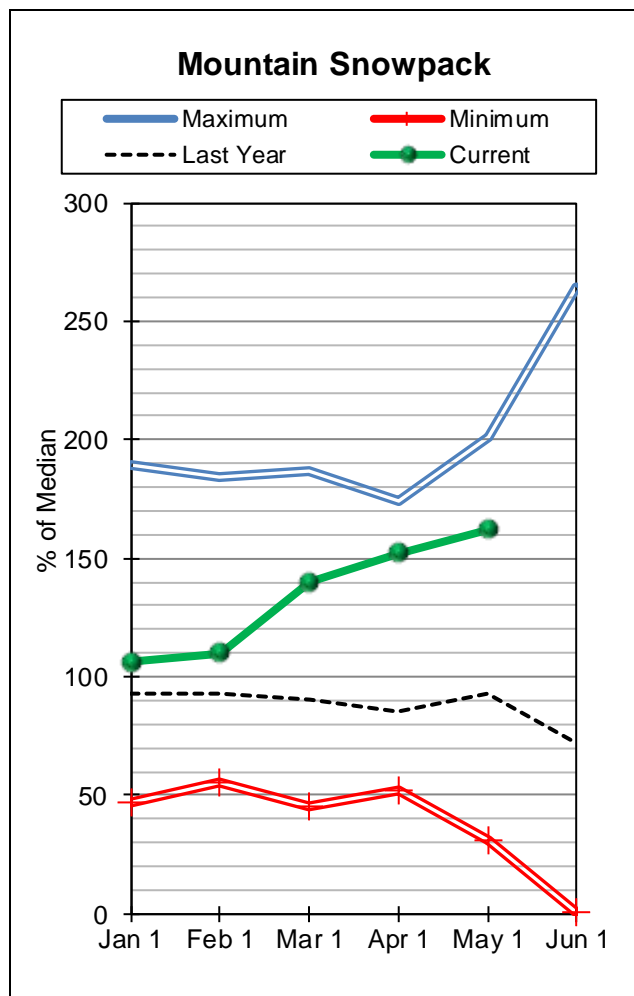
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
CAMAS (4)	36.8	38.4	26.9	45.2
LOWER JOCKO LAKE	0.4	0.9	0.8	6.4
MISSION VALLEY (8)	26.0	24.1	40.1	100.0
HUNGRY HORSE LAKE	2091.9	2690.6	2188.0	3451.0
FLATHEAD LAKE	1101.8	999.1	971.5	1791.0
Basin-wide Total	3256.8	3753.1	3227.3	5393.6
# of reservoirs	5	5	5	5

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
NF FLATHEAD in CANADA	2	171%	68%
NF FLATHEAD in MONTANA	8	142%	108%
MIDDLE FORK FLATHEAD	4	154%	124%
SOUTH FORK FLATHEAD	6	147%	108%
STILLWATER-WHITEFISH	9	174%	110%
SWAN	6	141%	113%
MISSION VALLEY	4	152%	113%
LITTLE BITTERROOT-ASHLEY	5	334%	153%
JOCKO	6	141%	113%
FLATHEAD in MONTANA	8	142%	108%
FLATHEAD RIVER BASIN	34	156%	112%

Upper Clark Fork River Basin



Following well above average snow accumulation in February and March, April in the Upper Clark Fork Basin experienced warmer temperatures, yet provided enough snowfall to maintain an above average basin wide snow water equivalent. Having ranked 3rd in March the basin now ranks 4th for basin wide snow water equivalent given 30 years of record. Currently the Upper Clark Fork Basin wide snow water equivalent is up 10 percent from April 1st and is currently at 162 percent of normal and 170 percent of last year. Assuming normal conditions in May, the Upper Clark Fork River Basin may have reached its peak snow water equivalent on April 28th at 22.8".

Well above average precipitation in February and March in the Upper Clark Fork Basin experienced a substantial decrease to near normal precipitation in April. April precipitation was 94 percent of average and 102 percent of last year. Water year to date averages are down from April 1st and are currently at 117 percent of average and 127 percent of last year.

Reservoir storage is currently 100 percent of average and 102 percent of last year.

Current streamflow forecasts indicate 160 percent of average, down 4 percent from last month on March 1st and 203 percent of last year. Nevada Creek is the highest at 227 percent of average.

Upper Clark Fork River Basin Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

UPPER CLARK FORK RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Little Blackfoot nr Garrison	MAY-JUL	69	84	94	168%	104	119	56
	MAY-SEP	75	92	103	163%	114	131	63
Flint Ck nr Southern Cross	MAY-JUL	11.5	14.7	16.9	161%	19.1	22	10.5
	MAY-SEP	14.3	18.3	21	165%	24	28	12.7
Flint Ck bl Boulder Ck	MAY-JUL	50	62	70	156%	78	90	45
	MAY-SEP	66	80	90	153%	100	114	59
Lower Willow Ck Reservoir Inflow ²	MAY	6.1	7.8	9	180%	10.2	11.9	5
	MAY-JUL	11.7	14.3	16	188%	17.7	20	8.5
MF Rock Ck nr Philipsburg	MAY-JUL	56	67	74	140%	81	92	53
	MAY-SEP	63	75	83	138%	91	103	60
Rock Ck nr Clinton	MAY-JUL	245	295	330	150%	365	415	220
	MAY-SEP	280	335	370	148%	405	460	250
Clark Fork R ab Milltown	MAY-JUL	485	620	715	161%	810	945	445
	MAY-SEP	585	735	835	158%	935	1090	530
Nevada Ck nr Helmville	MAY	8.9	11.2	12.7	244%	14.2	16.5	5.2
	MAY-JUL	17.8	22	25	227%	28	32	11
Blackfoot R nr Bonner	MAY-JUL	800	885	940	159%	995	1080	590
	MAY-SEP	910	1000	1060	157%	1120	1210	675
Clark Fork R ab Missoula	MAY-JUL	1320	1530	1670	162%	1810	2020	1030
	MAY-SEP	1530	1760	1910	159%	2060	2290	1200

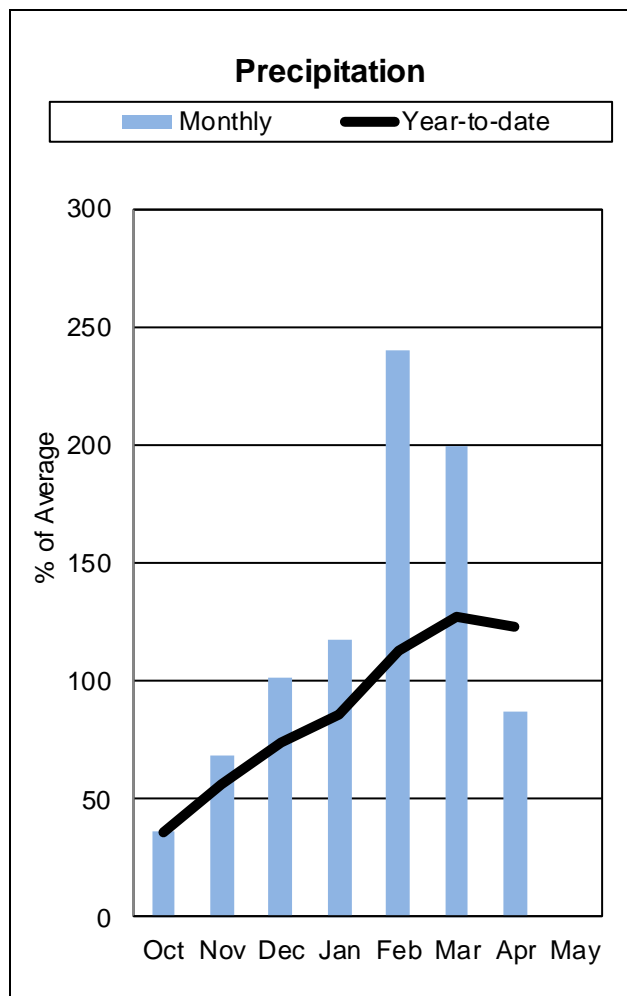
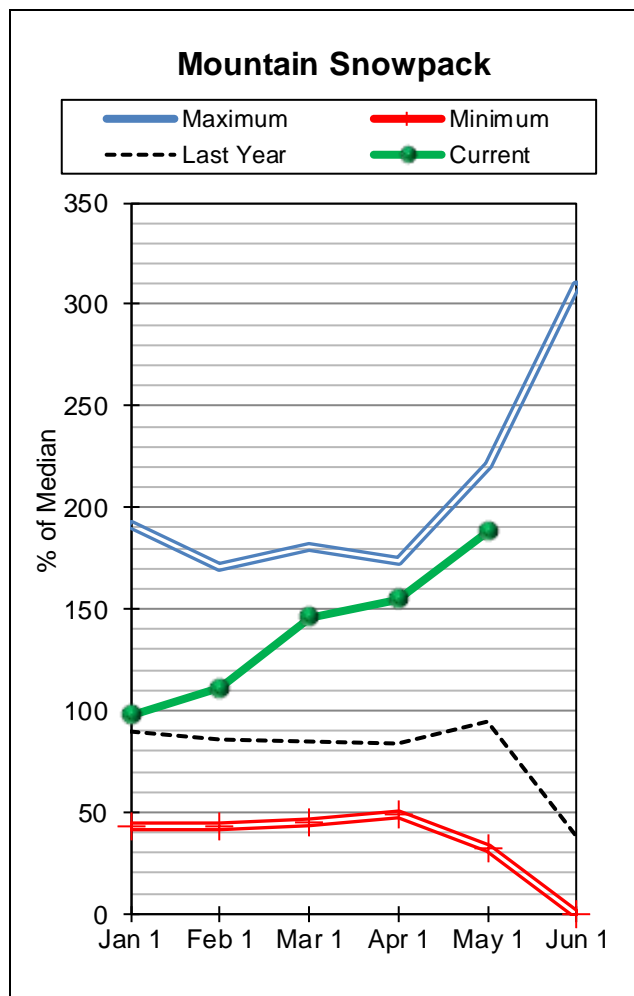
1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
EAST FORK ROCK CREEK RES	10.2	10.7	9.2	15.6
GEORGETOWN LAKE	26.8	28.2	28.2	31.0
LOWER WILLOW CREEK RESERVOIR		3.5	4.1	4.9
NEVADA CREEK RES	10.4	7.4	9.9	12.6
Basin-wide Total	47.5	49.8	51.4	64.1
# of reservoirs	3	4	4	4
Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median	
CLARK FORK ab FLINT CREEK	12	168%	85%	
FLINT CREEK	12	168%	85%	
ROCK CREEK	5	144%	84%	
CLARK FORK ab BLACKFOOT	20	162%	84%	
BLACKFOOT	20	162%	84%	
UPPER CLARK FORK RIVER BASIN	31	162%	91%	

Bitterroot River Basin



After a banner three months of snowfall in the Bitterroot River basin April finally brought some reprieve to the onslaught of storms since November 1st. Storms early in the month brought snowfall to the mountains helping the basin to likely reach its water year peak snow water equivalent at the end of the first week in April. Since then a lack of storms and periods of warm weather followed by a few days cool weather has slowly begun to release some of the water from the snow at low to mid elevations. Currently the Bitterroot River basin is ranked 3rd out of 34 years for May 1st SWE, and 3rd out of 34 years for annual maximum SWE which occurred on April 7th. On May 1st the basin-wide SWE was 188 percent of normal, up 31 percent from last month, and 199 percent of last year at this time. As we continue to delay snowmelt the basin percentages may increase with no additional snowfall, or below average melt rates, due to the fact that our daily basin normals are generally decreasing at this time. The take away point from these numbers should be that there is still a lot of snow left to melt in the Bitterroot River basin, and the delayed melt we have seen so far has left our snowpack is well above in relation to normal for May 1st.

Valley precipitation was well below average for the month of April, while mountain precipitation was more variable ranging from 61 percent to 112 percent of average. Even with a below average April, well above average precipitation in the mountains and valley since the first of the year has kept the basin at 123 percent of the water year to date precipitation average starting October 1st.

Reservoirs in the basin vary greatly in the basin in terms of storage. Painted Rocks is currently reporting 94 percent of capacity and 160 percent of average May 1st storage. Como is currently reporting 54 percent of capacity and 86 percent of average May 1st storage. The basin wide average is 73 percent of capacity and 120 percent of average May 1st storage.

Streamflow prospects are still well above average with forecasts indicating 158 percent of the average May-July flows. This is an increase of 7 percent from last month and 207 percent of what was experienced last year.

Bitterroot River Basin

Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

BITTERROOT RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
WF Bitterroot R Nr Conner ²	MAY-JUL	150	171	185	170%	199	220	109
	MAY-SEP	158	183	200	167%	215	240	120
Bitterroot R Nr Darby	MAY-JUL	475	535	575	160%	615	675	360
	MAY-SEP	525	585	630	150%	675	735	420
Como Reservoir Inflow ²	MAY-JUL	73	80	85	129%	90	97	66
	MAY-SEP	77	85	90	130%	95	103	69
Bitterroot R nr Missoula	MAY-JUL	1340	1470	1560	158%	1650	1780	990
	MAY-SEP	1430	1570	1670	153%	1770	1910	1090

1) 90% and 10% exceedance probabilities are actually 95% and 5%

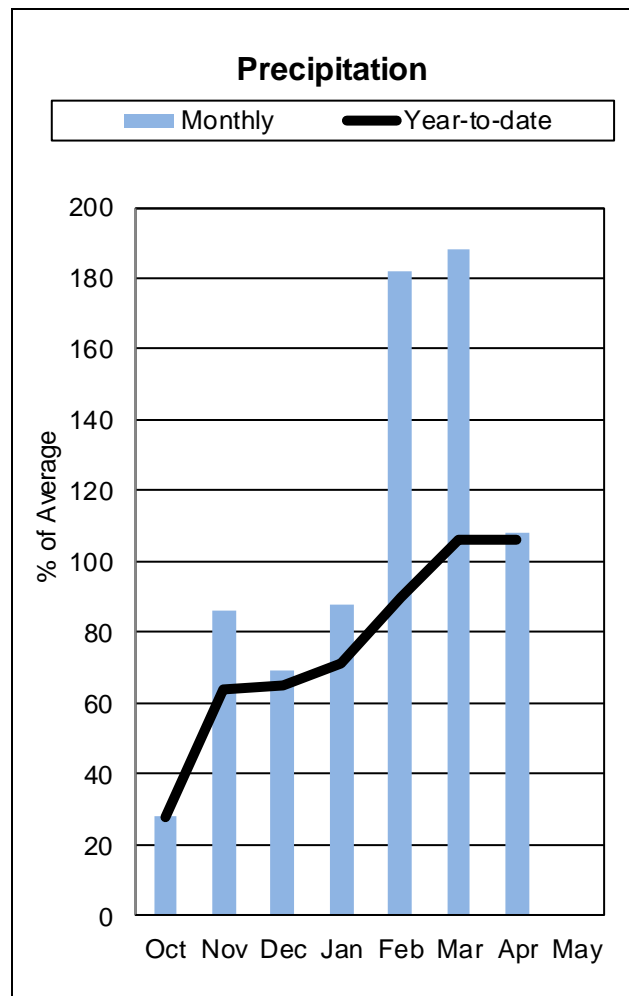
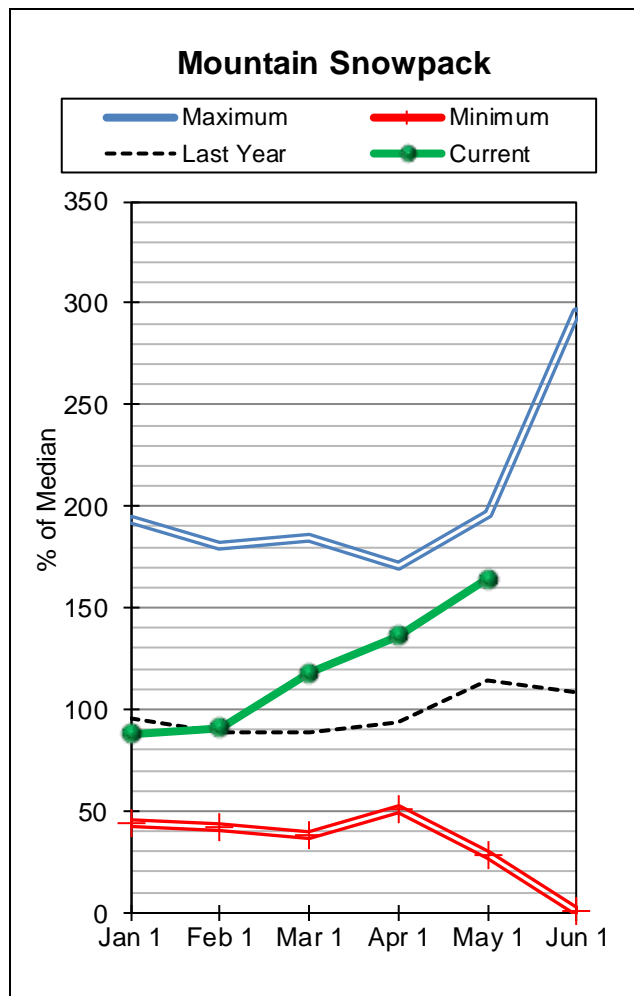
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
PAINTED ROCKS LAKE	29.9	23.0	18.7	31.7
LAKE COMO	18.9	21.6	22.1	34.9
Basin-wide Total	48.8	44.6	40.8	66.6
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
WEST FORK BITTERROOT	2	176%	98%
EAST SIDE BITTERROOT	4	168%	85%
WEST SIDE BITTERROOT	3	210%	105%
BITTERROOT RIVER BASIN	8	188%	95%

Lower Clark Fork River Basin



The Lower Clark Fork continued to receive well above normal snow for the month of March. Sites within the interior portion of the basin in Montana saw well above average snowpacks while the sites within the Idaho Panhandle area finally received well above normal snow. Overall, snowpack is 136 percent of normal and 137 percent of last year.

The continued well above average precipitation in April has again helped the basin recover from the well below average precipitation from last fall. Mountain precipitation was 183 percent of average while the valley stations were 215 percent of average. The combined April precipitation for the Lower Clark Fork Basin was 188 percent of average and 202 percent of last year. Year to date precipitation is 106 percent of average and 101 percent of last year.

Reservoir storage in Noxon Rapids is 103 percent of average and 101 percent of last year.

Assuming average precipitation for April through July, the streamflows are forecast to be 139 percent of average and 150 percent of last year.

Lower Clark Fork River Basin Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

LOWER CLARK FORK RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Clark Fork R bl Missoula	MAY-JUL	2690	3010	3230	159%	3450	3770	2030
	MAY-SEP	2980	3330	3570	155%	3810	4160	2300
Clark Fork R at St. Regis ¹	MAY-JUL	3350	3930	4200	159%	4470	5050	2640
	MAY-SEP	3710	4350	4640	155%	4930	5570	2990
Clark Fork R nr Plains ^{1,2}	MAY-JUL	9190	10400	10900	140%	11400	12600	7780
	MAY-SEP	10100	11400	12000	139%	12600	13900	8650
Thompson nr Thompson Falls	MAY-JUL	127	155	174	126%	193	220	138
	MAY-SEP	148	179	200	124%	220	250	161
Prospect Ck at Thompson Falls	MAY-JUL	74	86	94	124%	102	114	76
	MAY-SEP	82	94	102	121%	110	122	84
Clark Fork R at Whitehorse Rapids ^{1,2}	MAY-JUL	10400	11600	12200	140%	12800	14000	8740
	MAY-SEP	11400	12800	13500	138%	14200	15600	9760

1) 90% and 10% exceedance probabilities are actually 95% and 5%

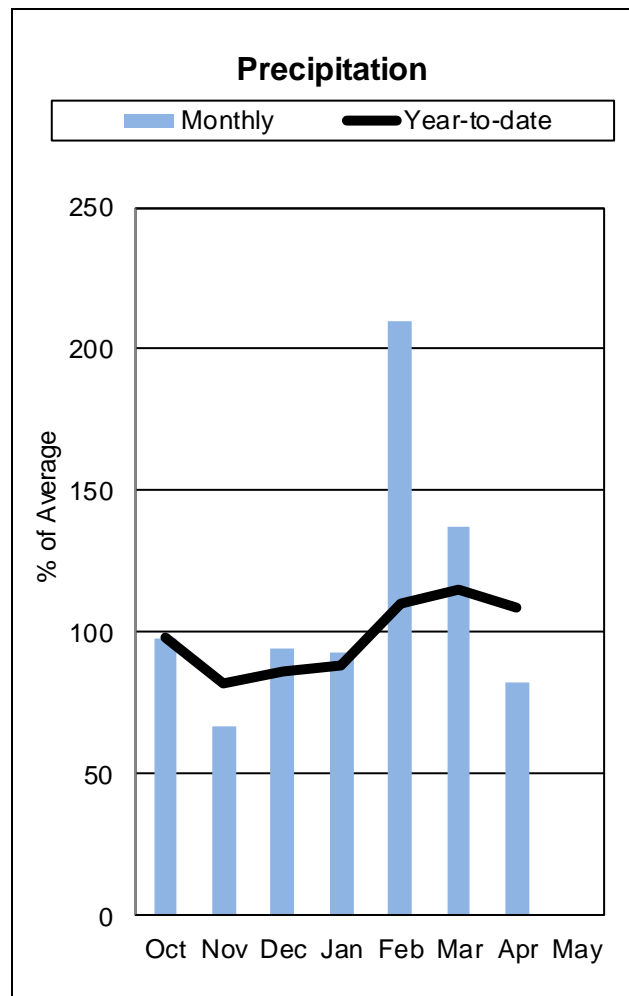
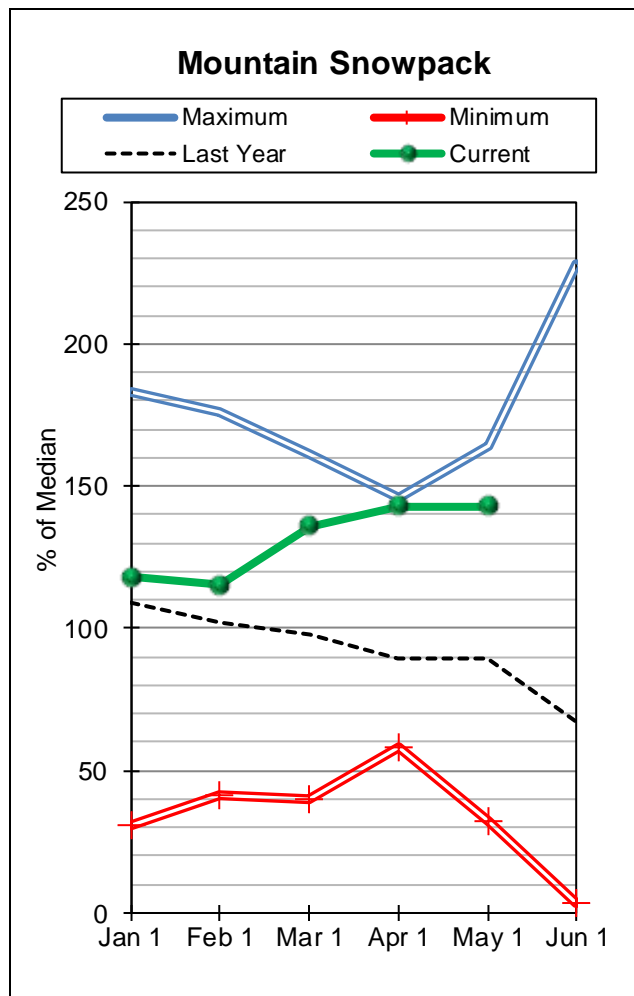
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
NOXON RAPIDS RES	318.9	310.8	307.4	335.0
Basin-wide Total	318.9	310.8	307.4	335.0
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
LOWER CLARK FORK RIVER BASIN	11	164%	114%

Jefferson River Basin



April proved to be variable in the Jefferson River basin as far as snow was concerned, with some snowfall experienced during the first and last weeks of the month. This variability also played out on the spatial scale with sub-basins in the southern and eastern most parts receiving the bulk of the moisture during the storms. The Ruby River basin made a recovery this year before melt began, and is 131 percent of normal, but below average early snowfall and precipitation can be seen in the water year to date total. The Red Rocks Lake Valley in the Centennial Range is still far below normal for snowpack on this date, and is currently the lowest basin in the state in terms of percentage of normal. The lack of additional snow accumulation during April indicates that the snow water equivalent peak for the Jefferson River basin was likely reached during the beginning of the month, assuming normal conditions occur during May. Currently the Jefferson River basin is 143 percent of normal on May 1st, the same value that it was on April 1st, and 159 percent of last year at this time.

Precipitation across the basin ranged from near normal for the month of April to below normal, a typical pattern where convective activity is driving the storm events. The southwestern reaches of the basin saw the lowest monthly precipitation, with Lemhi Ridge and Beagle Springs SNOTEL sites reporting well below monthly precipitation. Lakeview Ridge SNOTEL above Lima Reservoir continued the water year trend this month with below average precipitation. Currently this area is has the lowest water year to date precipitation in the state at 76 percent of average. Overall, mountain and valley precipitation was 83 percent of average for April, and 97 percent the water year to date average on May 1st. While relatively dry compared to the rest of the state this water year is 128 percent of what we saw last year to this point.

Reservoirs in the basin currently range from 42 percent of capacity to 97 percent of capacity, and are 79 percent of average for May 1st.

Streamflow prospects reflect the overall lack of precipitation in the basin during the month and have dropped 8 percent since April 1st. Current forecasts indicate 134 percent of average May-July flows, and 349 percent of what was experienced last year.

Jefferson River Basin

Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

JEFFERSON RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Lima Reservoir Inflow ²	MAY-JUL	22	33	41	72%	49	60	57
	MAY-SEP	24	37	46	72%	55	68	64
Clark Canyon Inflow ²	MAY-JUL	-7.7	27	51	80%	75	110	64
	MAY-SEP	6.6	44	70	84%	96	133	83
Beaverhead R at Barretts ²	MAY-JUL	-7	34	72	85%	110	165	85
	MAY-SEP	6	49	94	85%	139	205	111
Ruby R Reservoir Inflow ²	MAY-JUL	40	53	63	94%	72	86	67
	MAY-SEP	49	66	77	94%	88	104	82
Big Hole R at Wisdom	MAY-JUL	61	88	106	141%	124	150	75
	MAY-SEP	65	94	113	141%	133	162	80
Big Hole R nr Melrose	MAY-JUL	535	595	635	144%	675	735	440
	MAY-SEP	575	645	695	145%	740	810	480
Jefferson R nr Twin Bridges ²	MAY-JUL	420	580	690	134%	800	960	515
	MAY-SEP	420	605	735	132%	865	1050	555
Boulder R nr Boulder	MAY-JUL	72	82	90	150%	97	108	60
	MAY-SEP	76	88	97	149%	105	118	65
Willow Ck Reservoir Inflow ²	MAY-JUL	16.1	21	24	167%	27	32	14.4
	MAY-SEP	20	25	29	173%	32	37	16.8
Jefferson R nr Three Forks ²	MAY-JUL	550	725	840	146%	960	1130	575
	MAY-SEP	600	795	930	146%	1060	1260	635

1) 90% and 10% exceedance probabilities are actually 95% and 5%

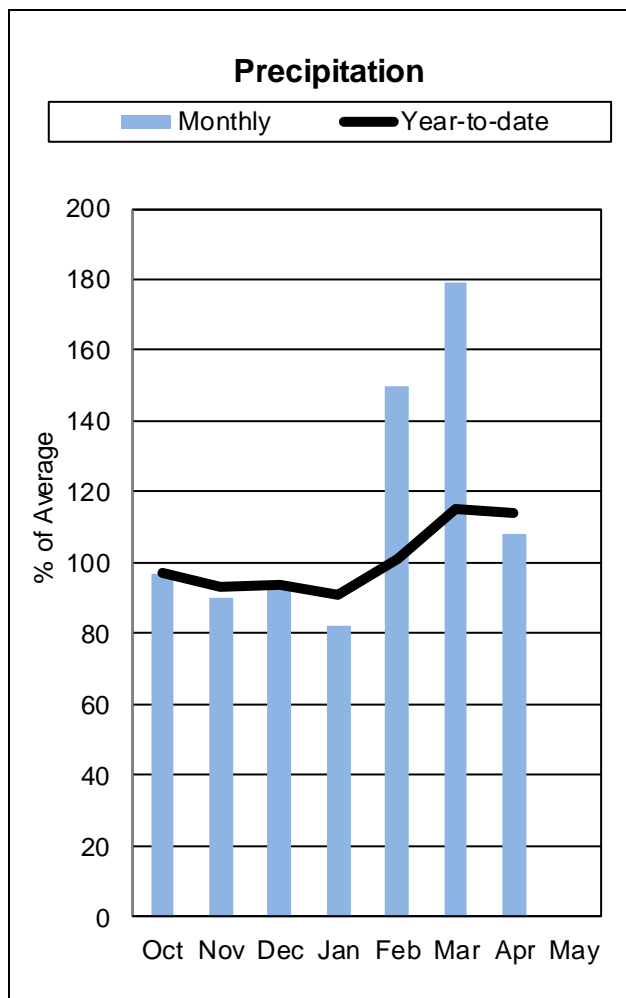
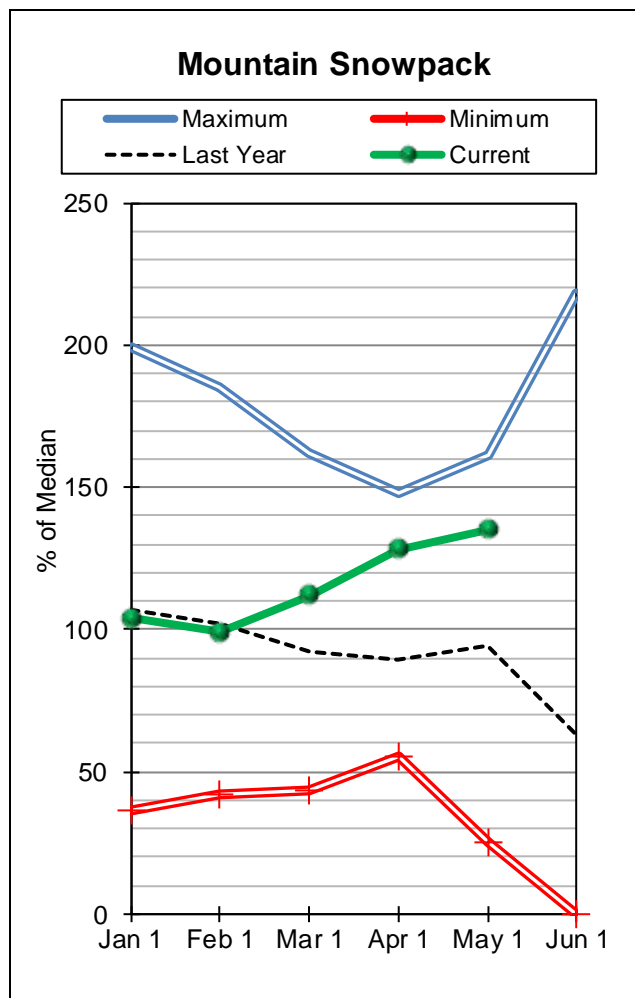
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
LIMA RESERVOIR	40.4	62.3	54.4	84.0
CLARK CANYON RES	106.6	137.9	141.6	255.6
RUBY RIVER RESERVOIR	37.6	36.1	36.7	38.8
Basin-wide Total	184.7	236.3	232.7	378.4
# of reservoirs	3	3	3	3

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
BEAVERHEAD	9	128%	96%
RUBY	5	131%	90%
BIGHOLE	12	155%	90%
BOULDER	6	166%	89%
JEFFERSON RIVER BASIN	26	143%	91%

Madison River Basin



Snowfall was near normal for the Madison River basin through the month of April, but southern basins were favored slightly over the northern parts of the river system. Early storms during the first two weeks of the month continued to grow the basin percentages of normal and cooler weather with less snowfall maintained the basin snow water equivalent until the end of the month. At the end of the month one final storm helped to set a likely SWE maximum for the year (assuming normal conditions), before warmer weather began the snowmelt process in some parts of the basin. The alternated cooler weather followed by warmer weather has helped the low to mid elevations to transition to active snowmelt, while higher elevations have not seen an abundance of melt at this time. Currently the Madison River Basin is 135 percent of normal for May 1st, up 7 percent from April 1st, and is 141 percent of last year at this time.

Nearly all the stations in the basin showed near to above normal precipitation in the month, with the exception being the SNOTEL sites in the Tobacco Root Range where well below normal was experienced during the month of April. Currently the Madison River basin is 114 percent of the watery year to date precipitation average, and 126 percent of last year at this time. April totals indicated 108 percent of the April average for the basin.

Reservoirs are currently at 80 percent of capacity, and 108 percent of average for May 1st in the Jefferson River basin.

Streamflow prospects have increased for the May-July period, with forecasts indicating 117 percent of average, and 168 percent of that was experienced last year. This is an increase of 9 percent from last month.

Madison River Basin

Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

MADISON RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Hebgen Reservoir Inflow ²								
	MAY-JUL	310	340	360	118%	380	410	305
	MAY-SEP	405	440	465	115%	490	525	405
Ennis Reservoir Inflow ²								
	MAY-JUL	505	570	615	116%	660	725	530
	MAY-SEP	640	720	770	113%	825	905	680

1) 90% and 10% exceedance probabilities are actually 95% and 5%

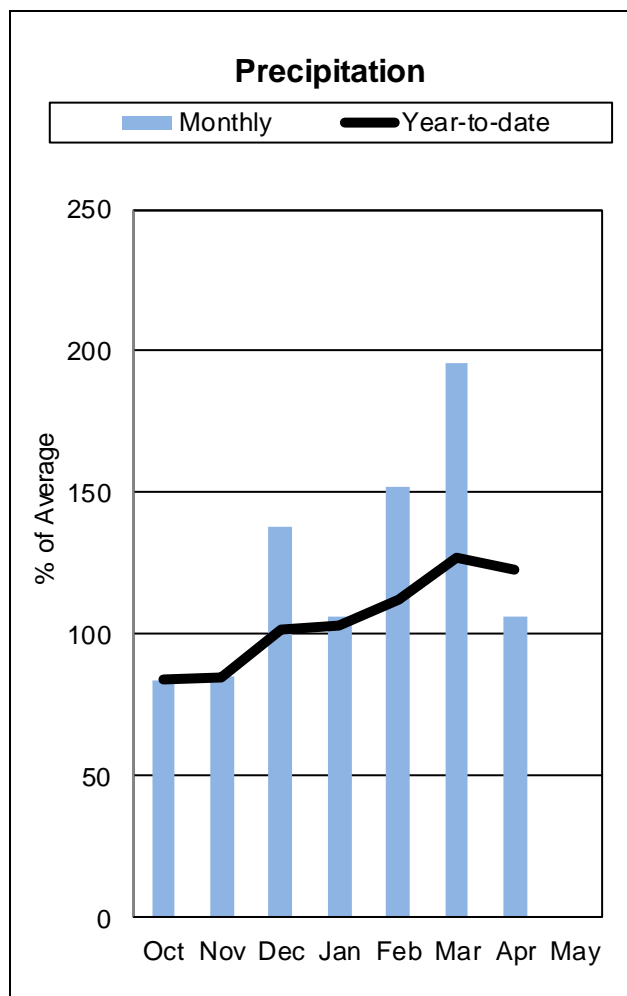
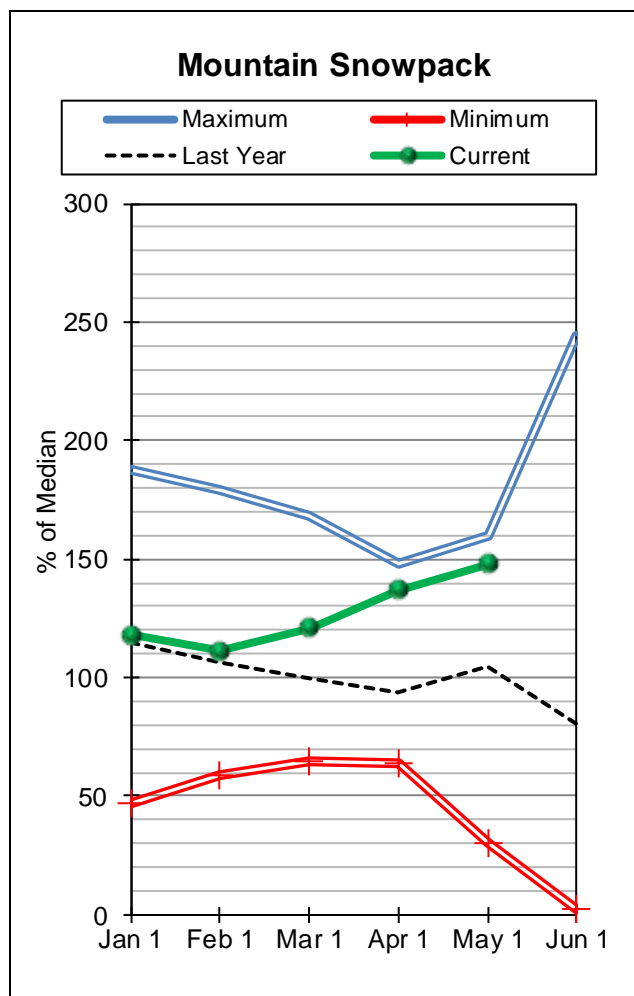
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
ENNIS LAKE - LOWER MADISON RES	33.2	30.7	32.4	41.0
HEBGEN LAKE	301.6	276.4	276.7	377.5
Basin-wide Total	334.8	307.1	309.1	418.5
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
MADISON abv HEBGEN LAKE	6	135%	97%
MADISON blw HEBGEN LAKE	7	132%	93%
MADISON RIVER BASIN	13	133%	95%

Gallatin River Basin



The month of April brought warm enough weather for many residents of the Gallatin River Basin to get out their summer clothes and enjoy the sun. However, it also brought snow for many snow enthusiasts to get their last hoots and hollers on the slopes for the season. The abundant snow water equivalent that accumulated over the months of February through April in the Gallatin River Basin appears to have peaked April 29th. Basin wide snow water equivalent is currently 148 percent of normal for May 1st, up 11 percent from April 1st, and 142 percent of last year. The highest percentage of normal snow water equivalent lies in the lower end of the Gallatin River Basin with Bridger Range at 172 percent and the upper Gallatin at 138 percent of normal for April 1st.

Following the 2014 trend, the month of April precipitation remained above average and continued to make up for the below average precipitation last fall. April precipitation was 106 percent of average and 120 percent of last year. As of May 1st water year to date precipitation was 123 percent of average and 131 percent of last year. Mountain SNOTEL stations received 109 percent of average for the month of April and 116 percent of last year, while valley weather stations received 81 percent of average for the month of April and 195 percent of last year.

Reservoir storage is currently 71 percent of average in Middle Creek Reservoir and 85 percent of last year.

Current streamflow forecasts indicate 136 percent of average, up 7 percent from last month on March 1st and 189 percent of last year.

Gallatin River Basin

Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

GALLATIN RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Gallatin R nr Gateway								
	MAY-JUL	410	450	480	130%	505	545	370
	MAY-SEP	480	525	560	127%	590	640	440
Hyalite Reservoir Inflow ²								
	MAY-JUL	21	23	24	130%	25	27	18.5
	MAY-SEP	23	25	27	129%	28	30	21
Gallatin R at Logan								
	MAY-JUL	415	490	545	143%	595	670	380
	MAY-SEP	475	570	630	142%	695	785	445

1) 90% and 10% exceedance probabilities are actually 95% and 5%

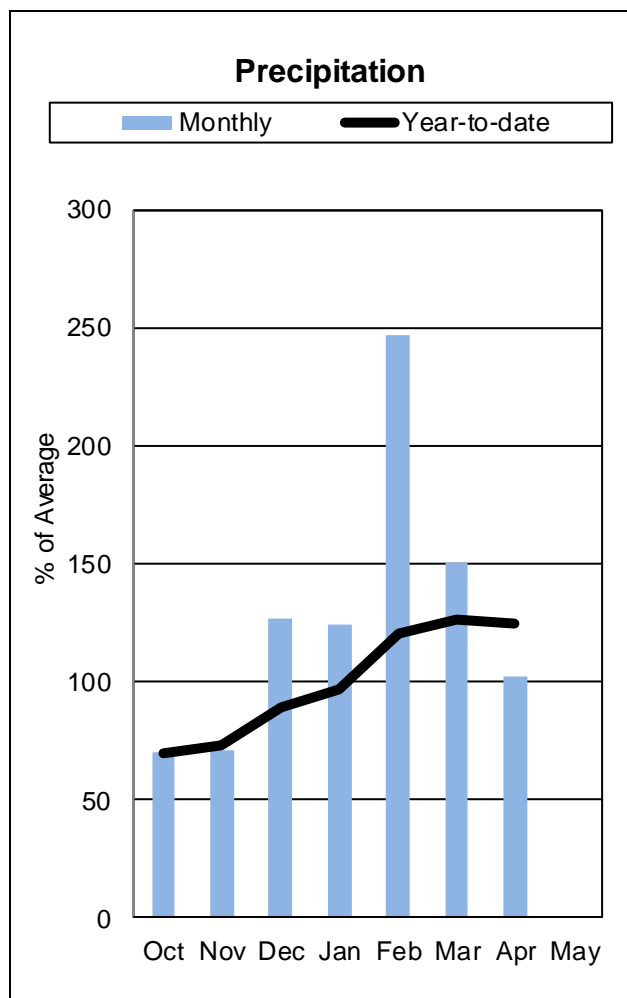
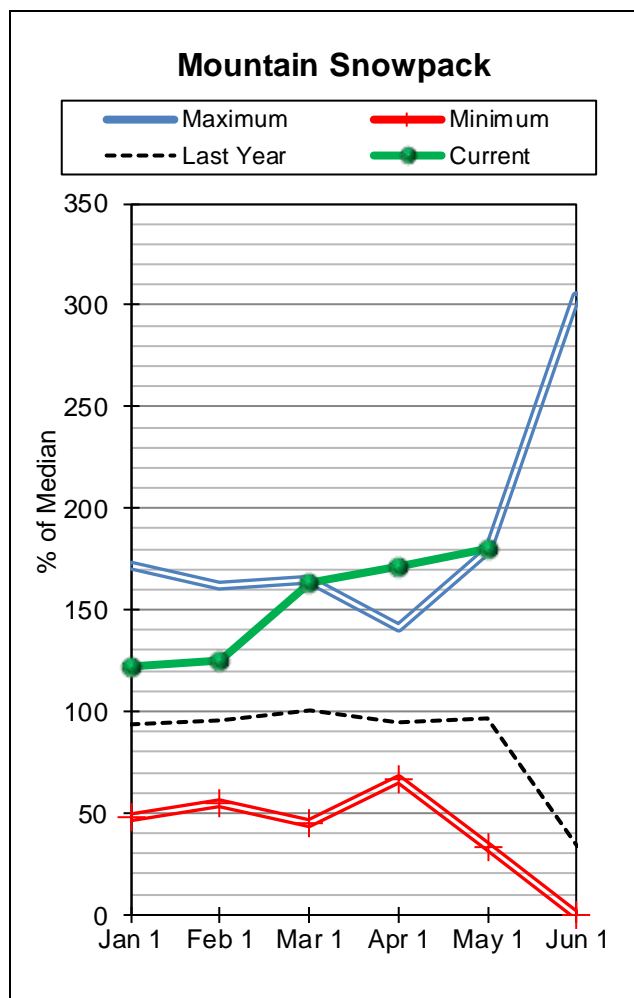
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
MIDDLE CREEK RES	4.4	5.2	6.2	10.2
Basin-wide Total	4.4	5.2	6.2	10.2
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
UPPER GALLATIN	6	136%	106%
HYALITE	3	158%	106%
BRIDGER	2	172%	104%
GALLATIN RIVER BASIN	11	147%	106%

Missouri Mainstem River Basin



Of the major river basins in the state the Missouri Mainstem River basin is currently second highest in percentage of normal at 180 percent of the May 1st value, up 10 percent from last month, and is 186 percent of last year at this time. This value can be slightly misleading in terms of what occurred during the month of April, as this basin typically has peaked and begun to melt with some runoff occurring. The first three weeks of the month did not bring any substantial accumulations to the basin, but the warm weather followed by cooler periods only began to melt the significant snowcover in the basin at the lower elevations. During the last week of the month a final storm bringing ample moisture may have brought the annual snow water equivalent peak SWE for the year, but continued wet weather as snow could bring another peak if it occurs. As of April 26th, the Missouri Mainstem River Basin was ranked 2nd behind 2011 for maximum recorded basin snow water equivalent, which occurred on May 10th, 2011. Future wet weather with precipitation falling as snowfall could help the basin to approach this value.

Spring precipitation in the basin at mountain SNOTEL sites was near to slightly below average for the month with a substantial part of the precipitation falling during the last week. April precipitation for mountain and valley locations was 96 percent of average for the month of April, and 166 percent of what fell last year during the month. Water year to date precipitation beginning October 1st continues to be well above average at 124 percent, but only 97 percent of what fell last water year.

Reservoirs in the basin range from 65 percent of capacity at Canyon Ferry to 99 percent at Helena Valley and Hauser. Basin wide the average percent of capacity is 70 percent, this is 100 percent of average for May 1st.

Streamflow prospects are still well above average with forecasts indicating 146 percent of the average May-July flows, and 184 percent of what was experienced last year. This is a slight drop of 2 percent since April 1st.

Missouri Mainstem Basin

Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

MISSOURI MAINSTEM BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Missouri R at Toston ²								
	MAY-JUL	1610	1890	2070	140%	2260	2540	1480
	MAY-SEP	1850	2190	2420	138%	2650	3000	1760
Dearborn R nr Craig								
	MAY-JUL	58	83	101	133%	118	143	76
	MAY-SEP	65	92	110	134%	128	154	82
Missouri R at Fort Benton ²								
	MAY-JUL	2390	2780	3050	139%	3320	3710	2190
	MAY-SEP	2800	3300	3650	136%	3990	4500	2680
Missouri R nr Virgelle ²								
	MAY-JUL	2750	3200	3500	139%	3800	4250	2510
	MAY-SEP	3120	3710	4110	136%	4510	5100	3030
Missouri R nr Landusky ²								
	MAY-JUL	3050	3490	3780	143%	4080	4510	2650
	MAY-SEP	3470	4040	4430	138%	4830	5400	3200
Missouri R bl Fort Peck Dam ²								
	MAY-JUL	3140	3660	4010	149%	4370	4890	2700
	MAY-SEP	3390	4100	4580	145%	5070	5780	3160
Lake Sakakawea Inflow ²								
	MAY-JUL	9090	10200	10900	151%	11600	12700	7230
	MAY-SEP	9790	11400	12400	149%	13500	15100	8320

1) 90% and 10% exceedance probabilities are actually 95% and 5%

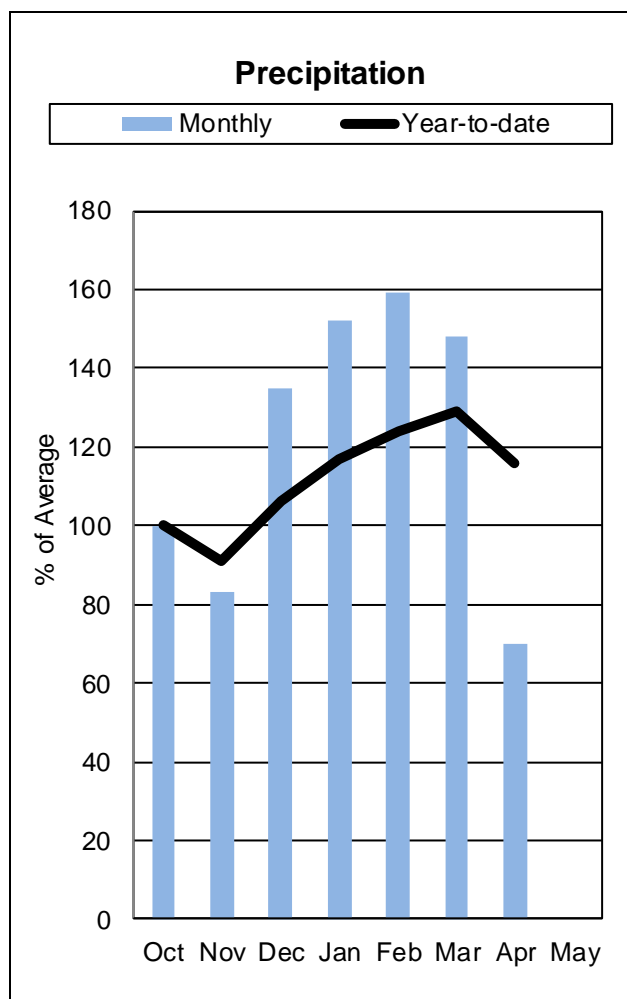
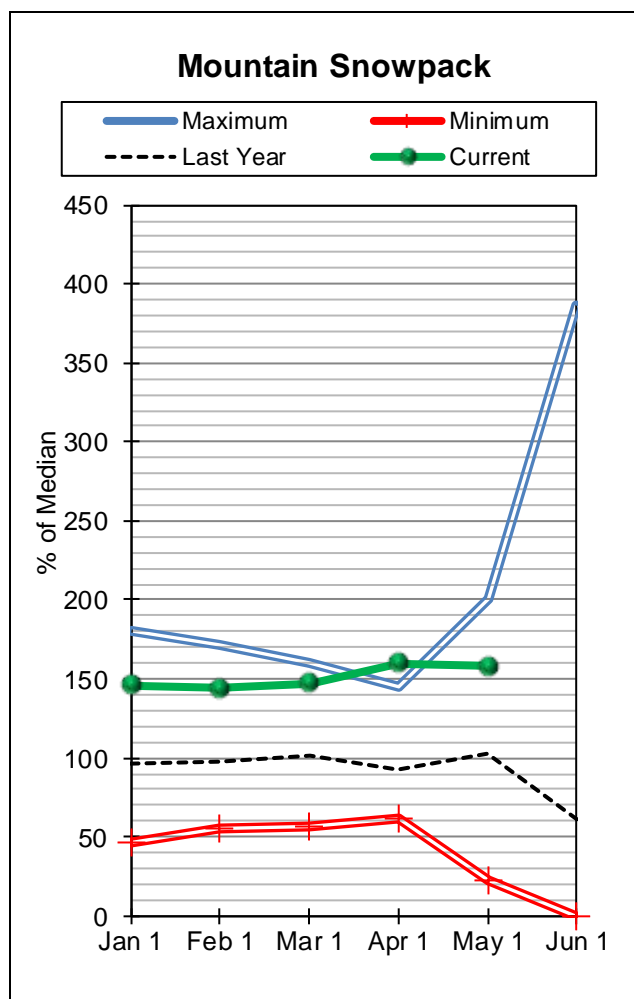
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
CANYON FERRY LAKE	1322.7	1425.4	1480.0	2043.0
HELENA VALLEY RESERVOIR	9.1	9.2	8.2	9.2
LAKE HELENA	11.0	10.9	10.8	12.7
HAUSER LAKE & LAKE HELENA	74.1	73.8	74.2	74.6
HOLTER LAKE	80.6	81.2	80.6	81.9
FORT PECK LAKE	13360.9	12777.6	13138.0	18910.0
Basin-wide Total	14858.4	14378.1	14791.8	21131.4
# of reservoirs	6	6	6	6

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
HEADWATERS MAINSTEM	9	180%	97%
SMITH-JUDITH-MUSSELSHELL	11	158%	103%
SUN-TETON-MARIAS	10	178%	110%
MAINSTEM ab FT PECK RES	29	173%	104%
MILK RIVER BASIN	3	0%	125%
MISSOURI MAINSTEM BASIN	34	166%	107%

Smith-Judith-Musselshell River Basins



As in previous months, the Smith-Judith-Musselshell Basins continue to report much above average snowpack conditions. Warmer temperatures towards the end of April resulted in melt at the low to mid-elevation sites and very little melt at the higher elevations. The combined basins' percentages are 158 percent of normal (slightly down from 160 percent on April 1) and 154 percent of last year (down from 167 percent on April 1)..

April was not generous with precipitation in the mountains or the valleys of these Central Montana basins. Mountain and valley precipitation for April was below average in all three major basins. The Musselshell was 59 percent of average and 70 percent of last year, the Judith was 74 percent of average and 86 percent of last year and the Smith was 75 percent of average and 95 percent of last year. The combined basins' April mountain and valley precipitation was 70 percent of average and 85 percent of last year. Due to well above average precipitation patterns earlier in the winter, year to date precipitation is 117 percent of average and 120 percent of last year.

Reservoir storages in the basins remain well average at 132 percent of average and 131 percent of last year.

Streamflow forecasts are 182 percent of average and 341 percent of last year. This is assuming average precipitation May through July.

Smith-Judith-Musselshell

Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

SMITH-JUDITH-MUSSELSHELL	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Sheep Ck nr White Sulphur Springs	MAY-JUL	13.1	16	18	134%	20	23	13.4
	MAY-SEP	15.2	18.8	21	130%	24	27	16.2
Smith R bl Eagle Ck ²	MAY-JUL	95	122	141	158%	159	187	89
	MAY-SEP	105	138	161	163%	184	215	99
NF Musselshell R nr Delpine	MAY-JUL	3.1	4.6	5.6	170%	6.5	8	3.3
	MAY-SEP	3.9	5.5	6.7	163%	7.8	9.5	4.1
SF Musselshell R ab Martinsdale	MAY-JUL	24	43	55	149%	68	87	37
	MAY-SEP	26	46	59	148%	72	92	40
Musselshell R at Harlowton ²	MAY-JUL	42	73	94	196%	115	146	48
	MAY-SEP	43	76	98	196%	121	154	50
Musselshell R nr Roundup ²	MAY-JUL	101	119	131	243%	143	161	54
	MAY-SEP	102	121	133	246%	146	165	54

1) 90% and 10% exceedance probabilities are actually 95% and 5%

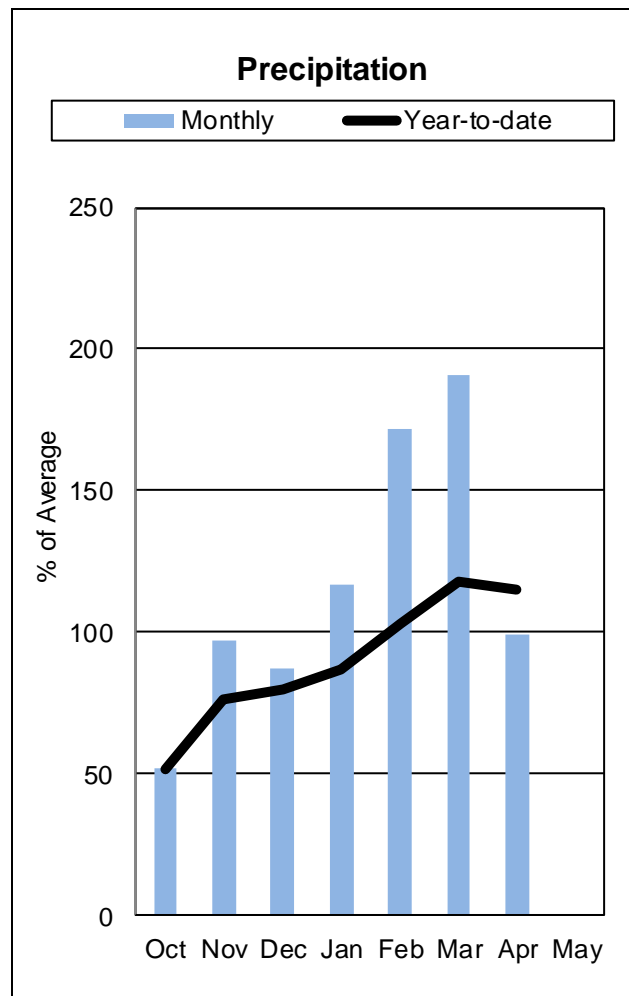
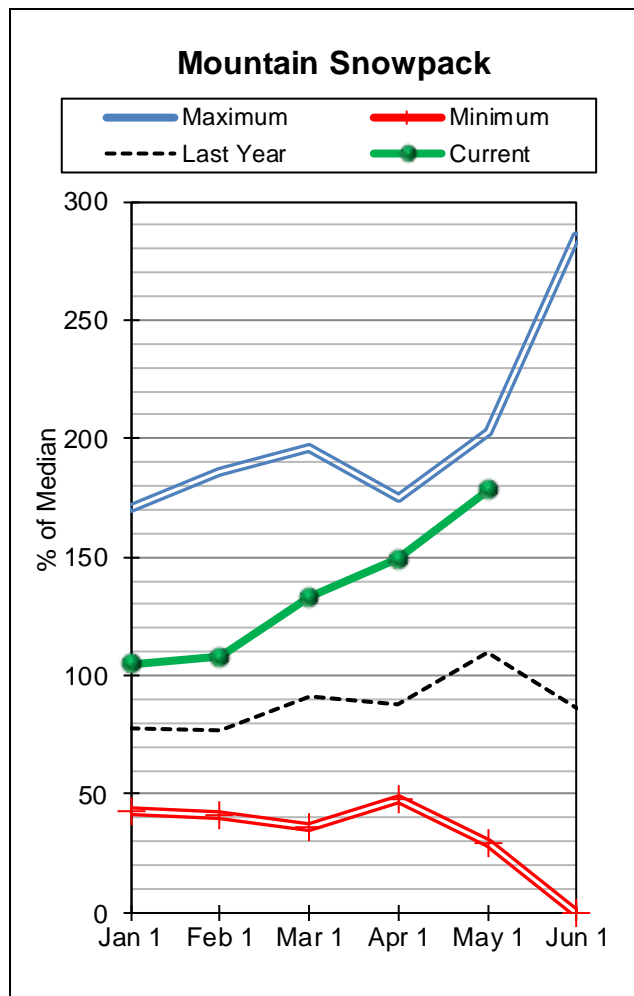
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
SMITH RIVER RES	10.7	8.6	8.3	10.6
ACKLEY LAKE	4.1	2.9	3.3	7.0
BAIR RES	5.1	4.9	4.5	7.0
MARTINSDALE RES	15.1	7.5	11.8	23.1
DEADMAN'S BASIN RES	69.3	55.9	51.0	72.2
Basin-wide Total	104.4	79.9	78.9	119.9
# of reservoirs	5	5	5	5

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
SMITH	6	159%	105%
HIGHWOOD	15	128%	115%
JUDITH	5	149%	104%
MUSSELSHELL	3	205%	82%
SMITH-JUDITH-MUSSELSHELL	11	158%	103%

Sun-Teton-Marias River Basins



Snowpack conditions as of May 1 remained well above normal in the Sun-Teton-Marias basins with 178 percent of normal and 160 percent of last year. The Sun Drainage had 178 percent of normal, the Teton Drainage had 185 percent of normal, and the Marias Drainage had 168 percent of normal. Decreases in snowpack numbers at the low to mid-elevations resulted from warm and windy conditions towards the end of April. Higher elevation snowpacks decreased but at a slower rate.

April brought near average precipitation to the Sun-Teton-Marias basins with the Sun at 71 percent of average, the Teton at 114 percent of average, and the Marias Drainage at 98 percent of average. The combined basins' percentages were near average at 99 percent of average for the month and 79 percent of last year. Year to date precipitation continues to be a little above average at 115 percent of average and 103 percent of last year.

Reservoir storages range from well below average at 37 percent of average at Gibson Reservoir to 130 percent of average for Pishkun Reservoir. The combined storages for all the reservoirs in these basins are 97 percent of average and 99 percent of last year.

Assuming average May through July precipitation, the streamflow forecasts are 137 percent of average and 147 percent of last year.

Sun-Teton-Marias

Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

SUN-TETON-MARIAS	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Gibson Reservoir Inflow	MAY-JUL	390	430	455	128%	480	520	355
	MAY-SEP	430	475	500	127%	530	575	395
Two Medicine R nr Browning ²	MAY-JUL	169	189	200	131%	215	235	153
	MAY-SEP	179	200	215	131%	230	250	164
Badger Ck nr Browning	MAY-JUL	80	91	98	127%	105	116	77
	MAY-SEP	91	104	113	123%	122	135	92
Swift Reservoir Inflow ²	MAY-JUL	47	57	63	129%	70	79	49
	MAY-SEP	57	68	76	127%	83	94	60
Dupuyer Ck nr Valier	MAY-JUL	1.22	7.6	12	132%	16.4	23	9.1
	MAY-SEP	1.42	8.6	13.5	126%	18.4	26	10.7
Cut Bank Ck nr Browning	MAY-JUL	60	71	78	126%	85	96	62
	MAY-SEP	66	78	86	126%	94	106	68
Marias R nr Shelby ²	MAY-JUL	295	380	435	153%	495	580	285
	MAY-SEP	295	390	455	152%	520	620	300
Teton R nr Dutton	MAY-JUL	25	47	62	177%	77	99	35
	MAY-SEP	30	54	70	171%	86	111	41

1) 90% and 10% exceedance probabilities are actually 95% and 5%

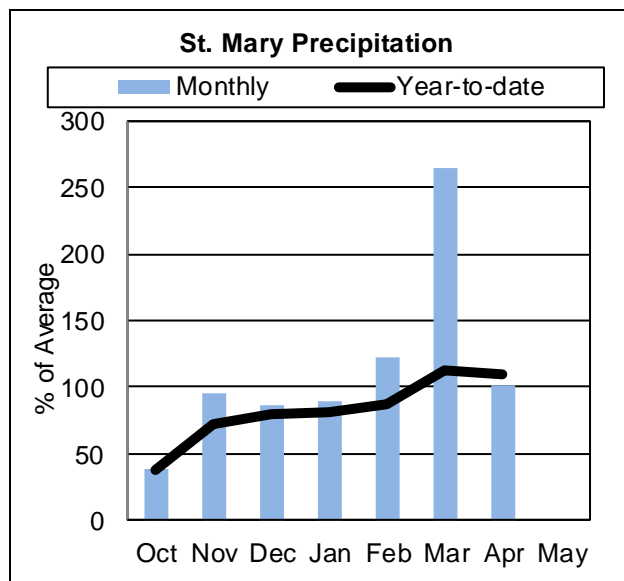
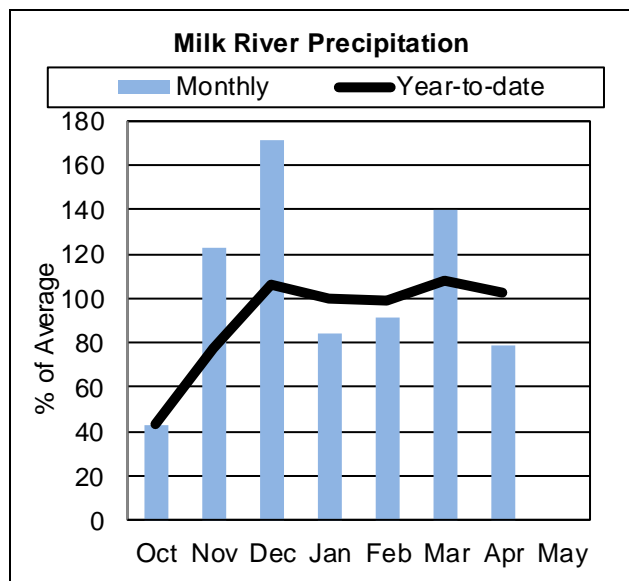
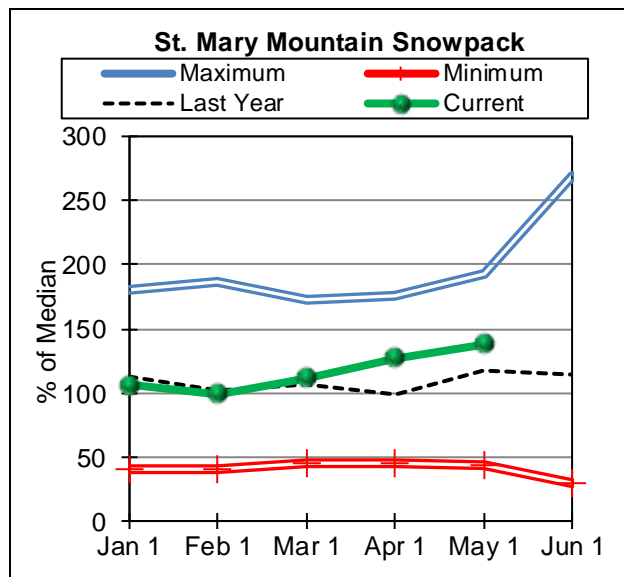
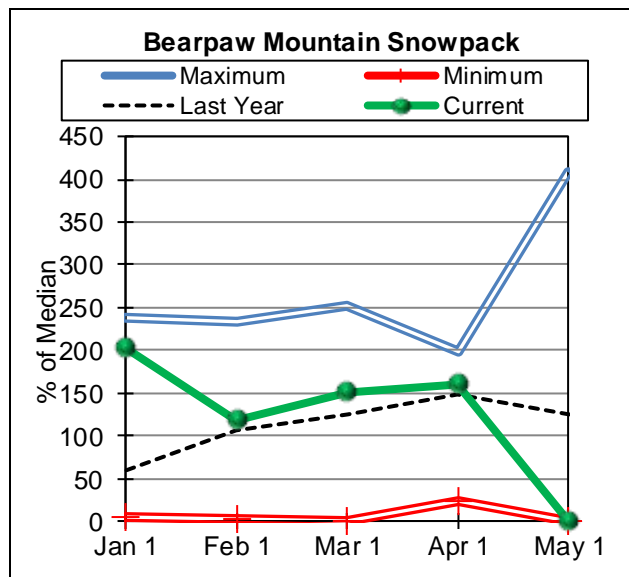
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
GIBSON RES	22.9	39.5	62.6	99.1
PISHKUN RES	30.2	19.5	23.3	32.0
WILLOW CREEK	29.3	27.9	25.6	32.2
LOWER TWO MEDICINE LAKE	9.6	8.2	10.5	11.9
FOUR HORNS LAKE	9.9	8.8	10.5	19.2
SWIFT RES	3.7	15.7	18.1	30.0
LAKE FRANCES	60.8	50.2	66.6	112.0
LAKE ELWELL (TIBER)	739.0	748.6	716.2	1347.0
Basin-wide Total	905.5	918.4	933.4	1683.4
# of reservoirs	8	8	8	8

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
SUN	15	128%	115%
TETON	4	185%	104%
MARIAS	4	154%	124%
SUN-TETON-MARIAS	10	178%	110%

St. Mary and Milk River Basins



May 1 snowpack conditions in the St. Mary River Basin remains above normal. The St. Mary snowpack is 138 percent of normal and 116 percent of last year. On May 1 Flattop Mtn. SNOTEL site had 136 percent of normal snowpack and Many Glacier SNOTEL site had 1436 percent of normal. Many Glacier saw relatively good melt rates during April and ended the month with a snow water equivalent value of 6.6 inches while the normal for May 1 is only 0.6 inches. Hence the outrageous percent of normal value!!! Flattop retained snowpack until the end of the month when the snowpack started to decrease slightly. Snow courses up above Many Glacier measured 126 percent of normal for May 1.

The Bear Paw Mountain sites' permanent snowpack has melted out which is normal for this time of year.

April mountain and valley precipitation was near average for the St. Mary Basin at 102 percent of average and 84 percent of last year. Mother Nature was not as generous with April precipitation in the Milk River Basin as she had been in the previous months. The mountain and valley precipitation for April was well below average at 79 percent of average and 86 percent of last year. The combined basins' mountain and valley precipitation for April is 88 percent of average and 86 percent of last year.

Reservoir storages in the basins are 137 percent of average and 100 percent of last year.

Assuming average precipitation for the May through July period, streamflow forecasts for the St. Mary River Basin are 115 percent of average and 105 percent of last year observed flow. Forecasts for the Milk River Basin are for 108 percent of average and 132 percent of last year again assuming average precipitation for the May through September period.

St. Mary & Milk Basins

Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

ST. MARY & MILK BASINS	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Lake Sherburne Inflow								
	MAY-JUL	88	96	102	119%	107	115	86
	MAY-SEP	102	112	118	117%	125	135	101
St. Mary R nr Babb ²								
	MAY-JUL	330	365	390	115%	415	450	340
	MAY-SEP	380	420	450	114%	480	520	395
St. Mary R at Intl Boundary ²								
	MAY-JUL	375	425	460	115%	495	545	400
	MAY-SEP	435	490	530	113%	570	625	470
Milk R at Western Crossing of Intl Bndry, AB								
	MAY-SEP	11	16.2	22	116%	35	52	18.9
Milk R at Eastern Crossing of Intl Bndry								
	MAY-SEP	23	34	46	104%	57	119	44

1) 90% and 10% exceedance probabilities are actually 95% and 5%

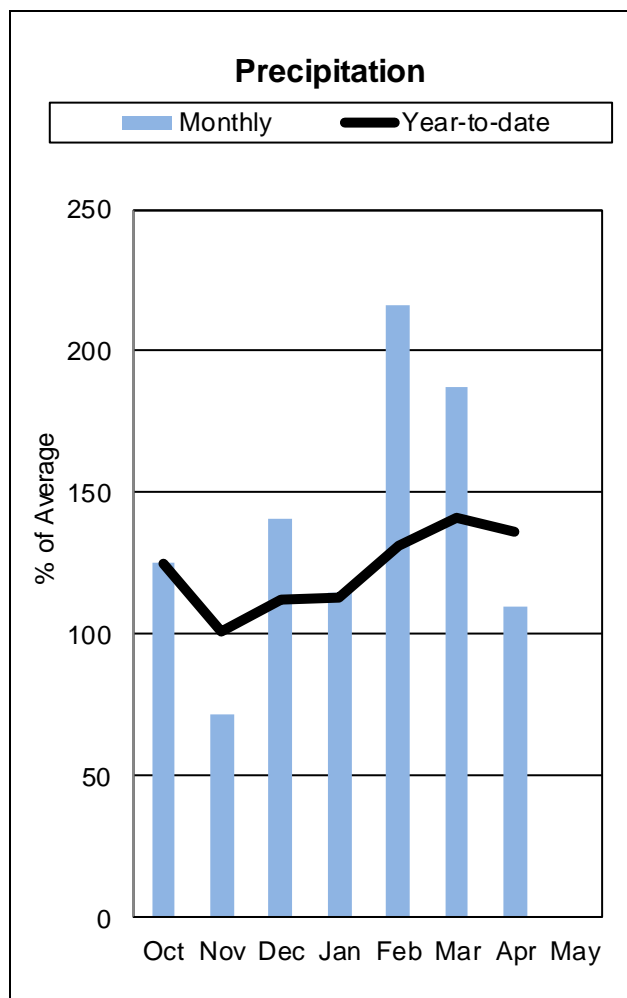
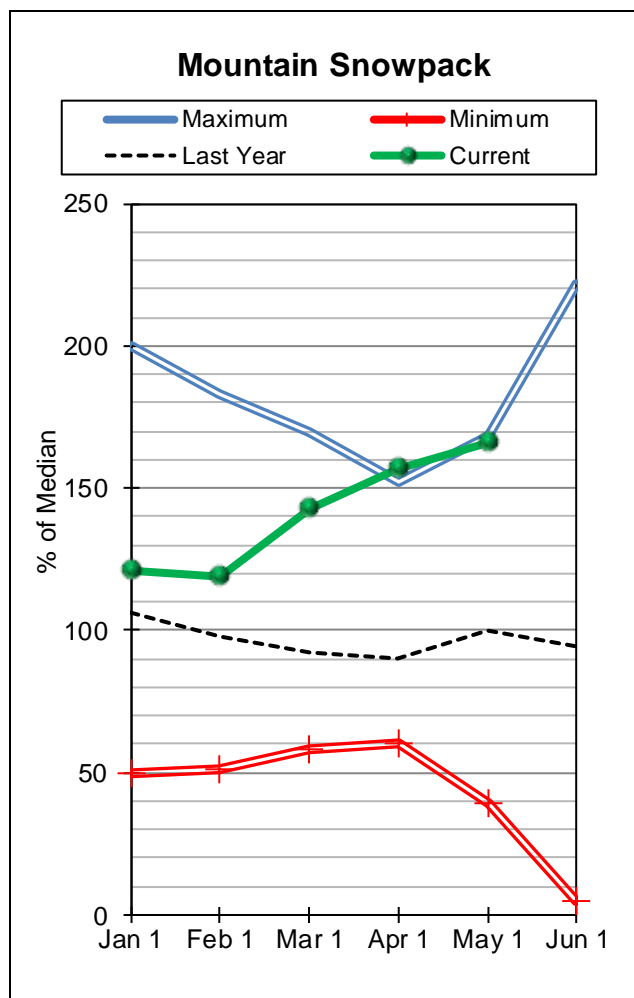
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
SHERBURNE LAKE RESERVOIR	36.1	32.9	18.0	64.3
FRESNO RES	91.1	92.4	74.9	127.0
NELSON RES	58.3	59.3	42.4	66.8
Basin-wide Total	185.5	184.6	135.3	258.1
# of reservoirs	3	3	3	3

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
ST. MARY	6	138%	118%
BEARPAW MOUNTAINS	3	0%	125%
CYPRESS HILLS, CANADA	0		
MILK RIVER BASIN	3	0%	125%
ST. MARY & MILK BASINS	9	136%	118%

Upper Yellowstone River Basin



After ranking 2nd highest in basin wide snow water equivalent in 30 years of record on March 1st, snow accumulation in the Upper Yellowstone River Basin declined over the month of April. On May 1st the basin had a basin wide snow water equivalent of 25.1", ranking 4th in 30 years of record. Assuming normal conditions in May, the Upper Yellowstone River Basin snow water equivalent may have reached its peak on April 19th at 25.4", the 5th highest max SWE in 30 years of record. The Upper Yellowstone River basin wide snow water equivalent is currently at 166 percent of normal and 166 percent of last year.

Following this water year's trend, the month of April precipitation remained above average. April precipitation was 110 percent of average and 122 percent of last year. As of May 1st water year to date precipitation was 136 percent of average and 154 percent of last year. Mountain SNOTEL stations received 117 percent of average for the month of April and 117 percent of last year, while valley weather stations received 91 percent of average for the month of April and 147 percent of last year.

Reservoir storage is currently 95 percent of average and 103 percent of last year.

Current streamflow forecasts indicate 142 percent of average, up 4 percent from last month on March 1st and 177 percent of last year. The Shields River Basin and the Clarks Fork of the Yellowstone Basin are the highest at 159 percent and 151 percent of average.

Upper Yellowstone River Basin Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

UPPER YELLOWSTONE RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Yellowstone R at Yellowstone Lake Outlet	MAY-JUL	590	650	690	127%	730	790	545
	MAY-SEP	810	880	930	127%	980	1050	735
Yellowstone R at Corwin Springs	MAY-JUL	1800	1960	2060	139%	2160	2320	1480
	MAY-SEP	2130	2320	2440	138%	2570	2760	1770
Yellowstone R at Livingston	MAY-JUL	2030	2210	2340	140%	2470	2660	1670
	MAY-SEP	2400	2620	2770	138%	2930	3150	2010
Shields R nr Livingston	MAY-JUL	106	145	172	159%	198	240	108
	MAY-SEP	114	158	188	153%	220	265	123
Boulder R at Big Timber	MAY-JUL	325	355	380	141%	400	430	270
	MAY-SEP	355	390	415	143%	440	475	290
Mystic Lake Inflow ²	MAY-JUL	60	64	67	118%	70	74	57
	MAY-SEP	75	82	86	119%	90	97	72
Stillwater R nr Absarokee ²	MAY-JUL	475	525	560	133%	595	645	420
	MAY-SEP	555	620	660	133%	700	765	495
Clarks Fk Yellowstone R nr Belfry	MAY-JUL	655	695	725	151%	755	795	480
	MAY-SEP	720	770	805	153%	840	890	525
Cooney Reservoir Inflow	MAY-JUL	31	41	47	142%	54	64	33
	MAY-SEP	40	51	59	137%	66	77	43
Yellowstone R at Billings	MAY-JUL	3690	4100	4380	146%	4650	5060	3000
	MAY-SEP	4210	4720	5060	145%	5410	5920	3490

1) 90% and 10% exceedance probabilities are actually 95% and 5%

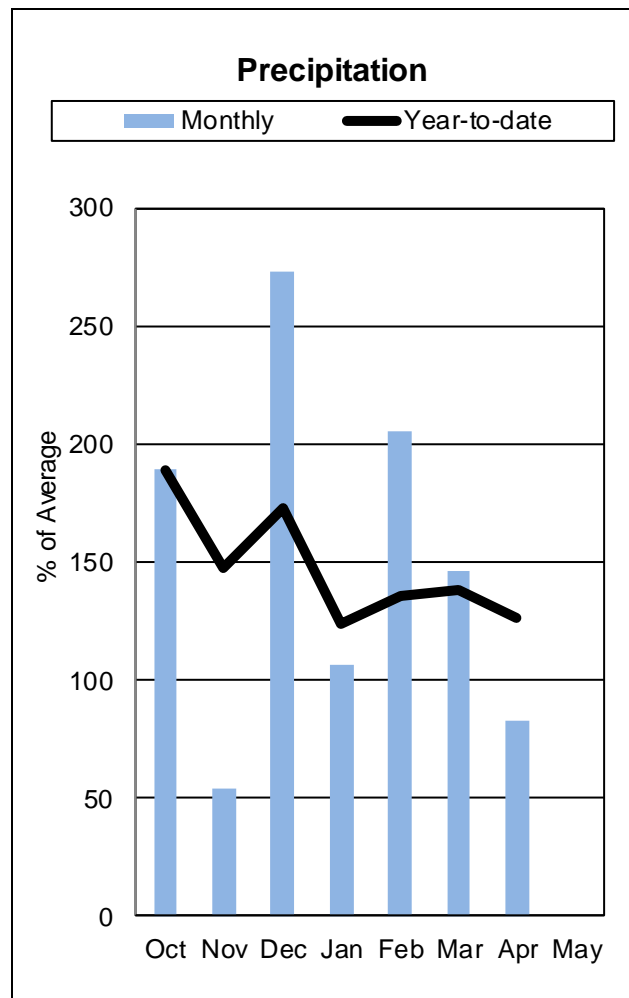
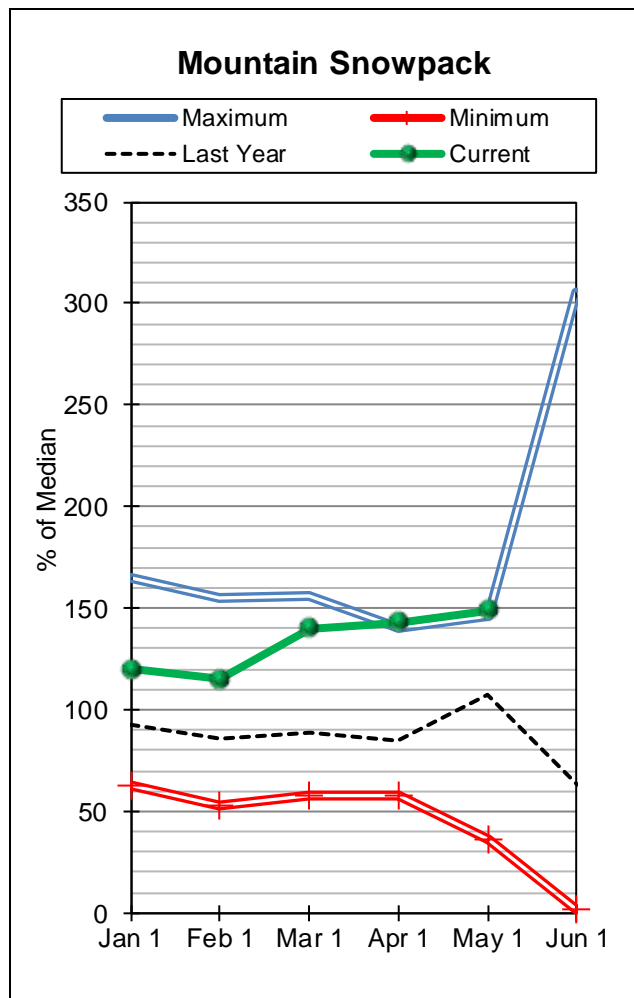
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
MYSTIC LAKE	0.3	0.0	0.6	21.0
COONEY RES	21.0	20.6	21.9	27.4
Basin-wide Total	21.3	20.6	22.5	48.4
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
YELLOWSTONE ab LIVINGSTON	12	157%	103%
SHIELDS	4	174%	92%
BOULDER-STILLWATER	3	169%	100%
RED LODGE-ROCK CREEK	5	201%	92%
CLARK'S FORK	7	171%	106%
UPPER YELLOWSTONE RIVER BASIN	28	166%	100%

Lower Yellowstone River Basin



A significant amount of the water contained in the snowpack fell during the months of February and March in the Lower Yellowstone basin, and April provided a break from these conditions to some extent. Some small events added snow water equivalent to the snowpack through the middle of the month and one last event at the end of the month added snow to the well above normal snowpacks. The snowpack began the transition to a more active spring snowpack producing a small amount of runoff from melt after during the third week of the month, and a possible current water year maximum SWE was reached on April 17th. Of special note during the month of April were the Powder and Tongue River basins where during a good part of the month daily SWE values were the highest on record. We did not reach new maximum SWE values recorded in these basins however, due to the fact that we began active melt in the basins after April 17th. It is important to remember that Spring storms can have a major impact on the easternmost basins in the Lower Yellowstone, and additional spring moisture could potentially add more snow water to the snowpack. Currently the Lower Yellowstone River basin is 149 percent of normal, down 5 percent from April 1st, and is 144 percent of last year at this time.

Depending on how you see things the below average precipitation in the mountains and valleys of the Lower Yellowstone drainage during April could be a good thing. Most basins saw below average precipitation during the month with the exception being the Shoshone River basin where above average precipitation was experienced. This water year has seen an abundance of precipitation in the basin since January 1st, and the below average month was not enough to bring down the water year to date average for May 1st. April monthly precipitation across the basin was 83 percent of average, leaving the water year to date since October 1st at 125 percent of average on May 1st.

Reservoir storage in the basin is near to above average in terms of capacity and percentage for this time. The average of the two reservoirs indicates 53 percent of capacity and 94 percent of average May 1st storage.

Streamflow prospects are still well above average with forecasts indicating 149 percent of the average May-July flows, and 202 percent of what was experienced last year. This is a drop of 10 percent from April 1st.

Lower Yellowstone River Basin (Wyoming)

Streamflow Forecasts - May 1, 2014

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

LOWER YELLOWSTONE RIVER BASIN (Wyoming)	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Bighorn R nr St. Xavier ²	MAY-JUL	1350	1580	1740	138%	1900	2130	1260
	MAY-SEP	1470	1730	1910	143%	2090	2350	1340
Little Bighorn R nr Hardin	MAY-JUL	107	125	138	162%	150	168	85
	MAY-SEP	124	143	156	161%	169	188	97
Tongue R nr Dayton ²	MAY-JUL	85	100	111	139%	122	138	80
	MAY-SEP	97	114	126	137%	138	155	92
Big Goose Ck nr Sheridan	MAY-JUL	49	57	63	143%	68	76	44
	MAY-SEP	57	65	71	137%	77	85	52
Little Goose Ck nr Bighorn	MAY-JUL	33	38	41	141%	45	50	29
	MAY-SEP	41	47	50	135%	54	60	37
Tongue River Reservoir Inflow ²	MAY-JUL	180	235	270	154%	305	360	175
	MAY-SEP	200	260	300	152%	335	395	198
Yellowstone R at Miles City ²	MAY-JUL	5440	6000	6390	146%	6770	7330	4370
	MAY-SEP	6100	6840	7350	146%	7860	8600	5030
Powder R at Moorehead	MAY-JUL	178	230	265	175%	300	350	151
	MAY-SEP	205	255	295	174%	330	385	170
Powder R nr Locate	MAY-JUL	186	250	295	180%	340	405	164
	MAY-SEP	210	280	330	178%	380	450	185
Yellowstone R nr Sidney ²	MAY-JUL	5520	6190	6650	152%	7110	7790	4380
	MAY-SEP	6080	6980	7580	152%	8190	9080	4980

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of April, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
BIGHORN LAKE	711.5	857.9	773.6	1356.0
TONGUE RIVER RES	45.5	58.3	34.7	79.1
Basin-wide Total	757.1	916.2	808.3	1435.1
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis May 1, 2014	# of Sites	% Median	Last Year % Median
WIND RIVER (Wyoming)	17	143%	97%
SHOSHONE RIVER (Wyoming)	4	147%	93%
BIGHORN RIVER (Wyoming)	18	155%	112%
LITTLE BIGHORN (Wyoming)	3	150%	93%
TONGUE RIVER (Wyoming)	9	152%	102%
POWDER RIVER (Wyoming)	7	174%	132%
LOWER YELLOWSTONE RIVER BASIN (Wyoming)	43	151%	105%

Montana Site Report

MONTANA	Network	Elevation	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
ALBRO LAKE	SNOTEL	8300'	71	29.5	18.9	156%	17.4	92%
AMBROSE	SC	6480'	42	17.2	9.6	179%	9.1	95%
ARCH FALLS	SC	7350'	49	16.7	10.7	156%	11.1	104%
ASHLEY DIVIDE	SC	4820'	3	1.1	0.0		0.0	
BADGER PASS	SNOTEL	6900'	94	45.9	29.4	156%	36.5	124%
BANFIELD MOUNTAIN	SNOTEL	5600'	53	19.7	13.1	150%	16.8	128%
BAREE CREEK	SC	5500'	112	49.5	34.8	142%	39.1	112%
BAREE MIDWAY	SC	4600'	86	36.9	22.7	163%	29.1	128%
BAREE TRAIL	SC	3800'	6	2.3	0.0		2.3	
BARKER LAKES	SNOTEL	8250'	68	22.1	16.3	136%	13.9	85%
BASIN CREEK	SNOTEL	7180'	40	13.6	9.0	151%	6.1	68%
BASSOO PEAK	SC	5150'	20	7.6	0.0		3.7	
BEAGLE SPRINGS	SNOTEL	8850'	28	10.0	8.7	115%	7.4	85%
BEAR BASIN	SC	8150'	70	25.4	17.2	148%	21.1	123%
BEAR MOUNTAIN	SNOTEL	5400'	133	60.7	53.7	113%	57.7	107%
BEARTOOTH LAKE	SNOTEL	9360'	99	34.9	22.8	153%	19.9	87%
BEAVER CREEK	SNOTEL	7850'	65	23.8	18.2	131%	18.3	101%
BIG SNOWY	SC	7150'	69	24.8	20.6	120%	19.7	96%
BISSON CREEK	SNOTEL	4920'	29	10.9	4.3	253%	4.3	100%
BLACK BEAR	SNOTEL	8170'	112	45.9	37.4	123%	40.0	107%
BLACK MOUNTAIN	SC	7750'	58	19.4	15.9	122%	12.3	77%
BLACK PINE	SNOTEL	7210'	41	17.4	8.5	205%	5.1	60%
BLACKTAIL	SC	5650'	34	11.8	7.0	169%	7.7	110%
BLACKTAIL MTN	SNOTEL	5650'	33	11.8			6.6	
BLOODY DICK	SNOTEL	7600'	38	15.3	8.5	180%	8.3	98%
BOTS SOTS	SC	7750'	25	9.7	4.5	216%	3.8	84%
BOULDER MOUNTAIN	SNOTEL	7950'	80	29.2	20.9	140%	19.2	92%
BOX CANYON	SNOTEL	6670'	23	8.8	3.0	293%	2.0	67%
BOXELDER CREEK	SC	5100'	0	0.0	1.6	0%	2.0	125%
BRACKETT CREEK	SNOTEL	7320'	76	33.3	20.1	166%	21.1	105%
BRISTOW CREEK	SC	3900'						
BRUSH CREEK TIMBER	SC	5000'	23	9.2	1.0	920%	1.2	120%
BULL MOUNTAIN	SC	6600'	8	2.8	0.0		0.0	
BURNT MTN	SNOTEL	5880'	16	5.2	0.0		0.0	
CABIN CREEK	SC	5200'	2	0.8	0.2	400%	0.0	0%
CALVERT CREEK	SNOTEL	6430'	3	1.5	0.7	214%	0.0	0%
CAMP SENIA	SC	7890'	50	17.9	5.4	331%	7.2	133%
CANYON	SNOTEL	7870'	43	15.4	10.4	148%	11.4	110%
CARROT BASIN	SNOTEL	9000'	103	34.8	28.6	122%	28.3	99%
CARROT BASIN	SC	9000'						
CHESSMAN RESERVOIR	SC	6200'	9	3.4	0.4	850%	0.0	0%
CHICAGO RIDGE	SC	5800'	106	42.2			40.6	
CHICKEN CREEK	SC	4060'	36	15.4	4.8	321%	10.7	223%
CLOVER MEADOW	SNOTEL	8600'	59	20.3	17.4	117%	14.9	86%
COLE CREEK	SNOTEL	7850'	72	25.7	16.6	155%	14.5	87%
COMBINATION	SNOTEL	5600'	2	0.2	0.0		0.0	
COPPER BOTTOM	SNOTEL	5200'	0	0.0			0.2	
COPPER CAMP	SNOTEL	6950'	104	52.3			38.1	
COPPER CAMP	SC	6950'						
COPPER MOUNTAIN	SC	7700'	42	11.6	9.6	121%	9.8	102%
COTTONWOOD CREEK	SC	6400'	27	8.2	7.8	105%	2.7	35%
COYOTE HILL	SC	4200'	16	2.0	0.0		0.5	

CREVICE MOUNTAIN	SC	8400'						
CRYSTAL LAKE	SNOTEL	6050'	48	19.4	11.3	172%	13.9	123%
DAD CREEK LAKE	SC	8800'			15.6			
DAISY PEAK	SNOTEL	7600'	48	15.5	10.2	152%	9.0	88%
DALY CREEK	SNOTEL	5780'	30	11.6	3.3	352%	0.7	21%
DARKHORSE LAKE	SNOTEL	8600'	108	41.4	30.1	138%	30.3	101%
DEADMAN CREEK	SNOTEL	6450'	34	13.0	5.2	250%	7.0	135%
DESERT MOUNTAIN	SC	5600'						
DISCOVERY BASIN	SC	7050'	47	16.3	8.8	185%	8.2	93%
DIVIDE	SNOTEL	7800'	36	11.5	11.1	104%	10.1	91%
DIX HILL	SC	6400'	24	9.6	0.2	4800%	0.0	0%
DUPUYER CREEK	SNOTEL	5750'	36	11.8	6.7	176%	4.8	72%
EAGLE CREEK	SC	7000'						
EAST BOULDER MINE	SNOTEL	6335'	13	4.6			0.1	
EL DORADO MINE	SC	7800'						
ELK HORN SPRINGS	SC	7800'	37	12.9	6.7	193%	8.4	125%
ELK PEAK	SNOTEL	7600'	87	32.2			21.0	
ELK PEAK	SC	8000'			15.2			
EMERY CREEK	SNOTEL	4350'	33	11.5	5.7	202%	7.6	133%
EMERY CREEK	SC	4350'						
FATTY CREEK	SC	5500'	83	34.8	20.9	167%	24.2	116%
FISH CREEK	SC	8000'			11.0			
FISHER CREEK	SNOTEL	9100'	126	47.9	32.7	146%	33.0	101%
FLATTOP MTN.	SNOTEL	6300'	141	57.3	42.2	136%	52.4	124%
FLEECER RIDGE	SC	7500'	40	15.8	8.0	198%	7.1	89%
FOREST LAKE	SC	6400'						
FOUR MILE	SC	6900'	23	8.6	4.6	187%		
FREIGHT CREEK	SC	6000'	40	15.0	9.0	167%	9.4	104%
FROHNER MEADOW	SNOTEL	6480'	29	11.1	6.4	173%	3.4	53%
GARVER CREEK	SNOTEL	4250'	20	6.6	1.9	347%	4.0	211%
GIBBONS PASS	SC	7100'						
GOAT MOUNTAIN	SC	7000'			5.4			
GOVERNMENT SADDLE	SC	5270'	94	38.0			33.0	
GRAVE CREEK	SNOTEL	4300'	36	15.2	5.0	304%	9.9	198%
GRIFFIN CREEK DIVIDE	SC	5150'	27	9.6	2.0	480%	2.4	120%
HAND CREEK	SNOTEL	5035'	22	8.8	5.5	160%	2.2	40%
HAWKINS LAKE	SNOTEL	6450'	81	31.1	25.9	120%	29.1	112%
HAYMAKER	SC	8050'						
HEBGEN DAM	SC	6550'	19	6.4	3.7	173%		
HELL ROARING DIVIDE	SC	5770'	85	35.7	26.6	134%	24.3	91%
HERRIG JUNCTION	SC	4850'	74	30.5	20.9	146%	21.4	102%
HIGHWOOD DIVIDE	SC	5650'						
HIGHWOOD STATION	SC	4600'			4.3			
HOLBROOK	SC	4530'	0	0.0	0.0		0.0	
HOODOO BASIN	SNOTEL	6050'	139	57.5	39.8	144%	40.6	102%
HUMBOLDT GULCH	SNOTEL	4250'	33	11.1	1.4	793%	4.0	286%
JAKES CANYON	SC	9040'						
JOHNSON PARK	SC	6450'	0	0.0	0.0		0.0	
KISHENEHN	SC	3890'						
KRAFT CREEK	SNOTEL	4750'	25	12.8			2.9	
LAKE CAMP	SC	7780'	36	13.0	6.6	197%	10.1	153%
LAKE CREEK	SC	6100'			0.0			
LAKEVIEW CANYON	SC	6930'			8.5		4.2	49%
LAKEVIEW RIDGE	SNOTEL	7400'	9	3.4	7.9	43%	5.7	72%
LEMHI RIDGE	SNOTEL	8100'	33	11.7	10.0	117%	7.3	73%
LICK CREEK	SNOTEL	6860'	52	18.4	8.7	211%	10.3	118%
LITTLE PARK	SC	7400'	51	18.3	12.6	145%	15.2	121%
LOGAN CREEK	SC	4300'	13	4.8	0.0		2.7	
LOLO PASS	SNOTEL	5240'	75	36.7	17.2	213%	18.0	105%

LONE MOUNTAIN	SNOTEL	8880'	67	29.9	18.5	162%	18.9	102%
LOOKOUT	SNOTEL	5140'	72	31.5	22.7	139%	21.3	94%
LOWER TWIN	SNOTEL	7900'	72	26.1	18.4	142%	17.4	95%
LUBRECHT FLUME	SNOTEL	4680'	0	0.0	0.0		0.0	
LUBRECHT FOREST NO 3	SC	5450'	8	2.9	0.0		0.0	
LUBRECHT FOREST NO 4	SC	4650'	0	0.0	0.0		0.0	
LUBRECHT FOREST NO 6	SC	4040'	0	0.0	0.0		0.0	
LUBRECHT HYDROPLOT	SC	4200'	0	0.0	0.0		0.0	
LUPINE CREEK	SC	7380'	14	4.1	1.2	342%	3.6	300%
MADISON PLATEAU	SNOTEL	7750'	72	27.4	21.3	129%	20.6	97%
MANY GLACIER	SNOTEL	4900'	27	8.6	0.6	1433%	1.7	283%
MARIAS PASS	SC	5250'	48	20.3	10.4	195%	12.2	117%
MINERAL CREEK	SC	4000'	7	2.4	6.5	37%	0.0	0%
MONUMENT PEAK	SNOTEL	8850'	80	31.6	21.0	150%	21.3	101%
MOSS PEAK	SNOTEL	6780'	125	50.4	38.7	130%	44.2	114%
MOULTON RESERVOIR	SC	6850'			1.5			
MOUNT ALLEN NO 7	SC	5700'	113	33.4	35.0	95%	41.7	119%
MOUNT LOCKHART	SNOTEL	6400'	66	28.7	16.9	170%	17.9	106%
MUDD LAKE	SC	7650'			16.2			
MULE CREEK	SNOTEL	8300'	65	23.0	16.1	143%	15.9	99%
N FK ELK CREEK	SNOTEL	6250'	42	16.0	7.5	213%	6.6	88%
NEVADA RIDGE	SNOTEL	7020'	58	23.7	12.3	193%	13.3	108%
NEW WORLD	SC	6900'	58	20.4			10.3	
NEZ PERCE CAMP	SNOTEL	5650'	48	18.6	9.7	192%	9.2	95%
NOISY BASIN	SNOTEL	6040'	127	54.8	44.0	125%	47.9	109%
NORRIS BASIN	SC	7550'	19	7.6	5.4	141%	3.0	56%
NORTH FORK JOCKO	SNOTEL	6330'	124	55.5	38.2	145%	45.6	119%
NORTHEAST ENTRANCE	SNOTEL	7350'	28	11.4	3.0	380%	3.3	110%
ONION PARK	SNOTEL	7410'	49	18.0	13.5	133%	13.0	96%
OPHIR PARK	SC	7150'	55	20.3	13.8	147%	8.4	61%
PARKER PEAK	SNOTEL	9400'	97	37.7	21.3	177%	25.6	120%
PETERSON MEADOWS	SNOTEL	7200'	47	16.6	10.7	155%	8.3	78%
PICKFOOT CREEK	SNOTEL	6650'	30	12.1	3.7	327%	5.5	149%
PIKE CREEK	SNOTEL	5930'	33	9.5			7.3	
PIPESTONE PASS	SC	7200'	25	8.6	3.4	253%	3.2	94%
PLACER BASIN	SNOTEL	8830'	83	30.1	17.6	171%	18.1	103%
POORMAN CREEK	SNOTEL	5100'	95	45.0	28.2	160%	32.8	116%
PORCUPINE	SNOTEL	6500'	19	7.0	0.8	875%	0.0	0%
POTOMAGETON PARK	SC	7150'	25	10.8	7.1	152%		
RED MOUNTAIN	SC	6000'	58	20.0	14.1	142%		
REVAIS	SC	4800'	0	0.0	0.0		0.0	
ROCK CREEK MDWS	SC	3400'	25	10.2			1.6	
ROCKER PEAK	SNOTEL	8000'	68	24.6	14.9	165%	14.0	94%
ROCKY BOY	SNOTEL	4700'	0	0.0	0.0		0.0	
ROLAND SUMMIT	SC	5120'						
S FORK SHIELDS	SNOTEL	8100'	71	26.0	17.8	146%	13.5	76%
SACAJAWEA	SNOTEL	6550'	43	19.1	10.3	185%	10.4	101%
SADDLE MTN.	SNOTEL	7940'	93	38.2	22.5	170%	22.3	99%
SHORT CREEK	SNOTEL	7000'	13	4.0	3.8	105%	3.0	79%
SHOWER FALLS	SNOTEL	8100'	93	33.4	23.9	140%	24.4	102%
SKALKAHO SUMMIT	SNOTEL	7250'	70	29.7	22.1	134%	17.0	77%
SLEEPING WOMAN	SNOTEL	6150'	49	19.6	11.0	178%	12.6	115%
SLIDE ROCK MOUNTAIN	SC	7100'	55	18.3	13.0	141%	12.8	98%
SPOTTED BEAR MOUNTAIN	SC	7000'	44	18.1	7.7	235%	4.8	62%
SPUR PARK	SNOTEL	8100'	85	30.9	22.4	138%	22.9	102%
STAHL PEAK	SNOTEL	6030'	112	44.2	35.4	125%	38.1	108%
STAHL PEAK	SC	6030'						
STEMPLE PASS	SC	6600'	43	13.8	6.9	200%	8.0	116%

STORM LAKE	SC	7780'	55	19.0	14.4	132%	11.6	81%
STRINGER CREEK	SNOTEL	6550'	38	14.4	8.1	178%	9.6	119%
STRYKER BASIN	SC	6180'	103	43.0	30.3	142%	35.5	117%
STUART MOUNTAIN	SNOTEL	7400'	109	42.6	29.4	145%	33.3	113%
TAYLOR ROAD	SC	4080'	0	0.0	0.0		0.0	
TEN MILE LOWER	SC	6600'	31	11.6	2.7	430%	5.8	215%
TEN MILE MIDDLE	SC	6800'	54	18.0	9.4	191%	10.2	109%
TEPEE CREEK	SNOTEL	8000'	34	11.9	13.4	89%	9.2	69%
TIMBERLINE CREEK	SC	8850'	57	22.7	13.8	164%	11.5	83%
TIZER BASIN	SNOTEL	6880'	31	12.1	8.2	148%	5.5	67%
TRINKUS LAKE	SC	6100'	124	58.3	38.8	150%	41.6	107%
TRUMAN CREEK	SC	4060'	0	0.0	0.0		0.0	
TWELVEMILE CREEK	SNOTEL	5600'	41	18.2	3.4	535%	3.4	100%
TWENTY-ONE MILE	SC	7150'	33	12.2	11.3	108%	11.3	100%
TWIN LAKES	SNOTEL	6400'	118	57.5	33.0	174%	34.9	106%
UPPER HOLLAND LAKE	SC	6200'	104	43.7	30.4	144%	35.2	116%
WALDRON	SNOTEL	5600'	38	13.8	4.8	288%	6.8	142%
WARM SPRINGS	SNOTEL	7800'	94	33.9	21.4	158%	18.6	87%
WEASEL DIVIDE	SC	5450'	97	41.3	28.8	143%	31.8	110%
WEST YELLOWSTONE	SNOTEL	6700'	12	4.2	1.8	233%	0.0	0%
WHISKEY CREEK	SNOTEL	6800'	47	17.4	14.6	119%	9.8	67%
WHITE ELEPHANT	SNOTEL	7710'	71	28.3	24.0	118%	25.1	105%
WHITE MILL	SNOTEL	8700'	94	36.5	23.8	153%	24.7	104%
WOLVERINE	SNOTEL	7650'	37	12.7	2.5	508%	5.9	236%
WOOD CREEK	SNOTEL	5960'	33	12.3	6.8	181%	5.5	81%
WRONG CREEK	SC	5700'	30	12.8	4.7	272%	4.7	100%
WRONG RIDGE	SC	6800'		19.5	13.0	150%	14.2	109%
YOUNTS PEAK	SNOTEL	8350'			15.5		13.9	90%

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Montana
Water Supply Outlook
Report
Natural Resources Conservation Service

